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915027

NL-300 D1711

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATIONS

WHITING DEVELOPMENT, SITE NUMBER 915027
TOWN OF NEWSTEAD, ERIE COUNTY

February 1990

Prepared for:

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., Director

Prepared by:

Ecology and Environment Engineering, P.C.

ND-2900 D1711

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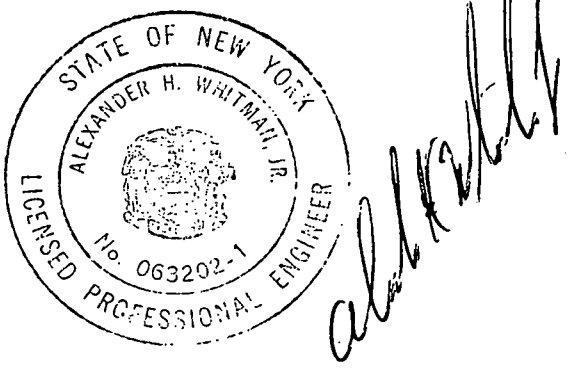

Prepared for:

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, Commissioner

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., Director

Prepared by:

ecology and environment engineering, p.c.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060

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1. EXECUTIVE SUMMARY

1.1 SITE BACKGROUND

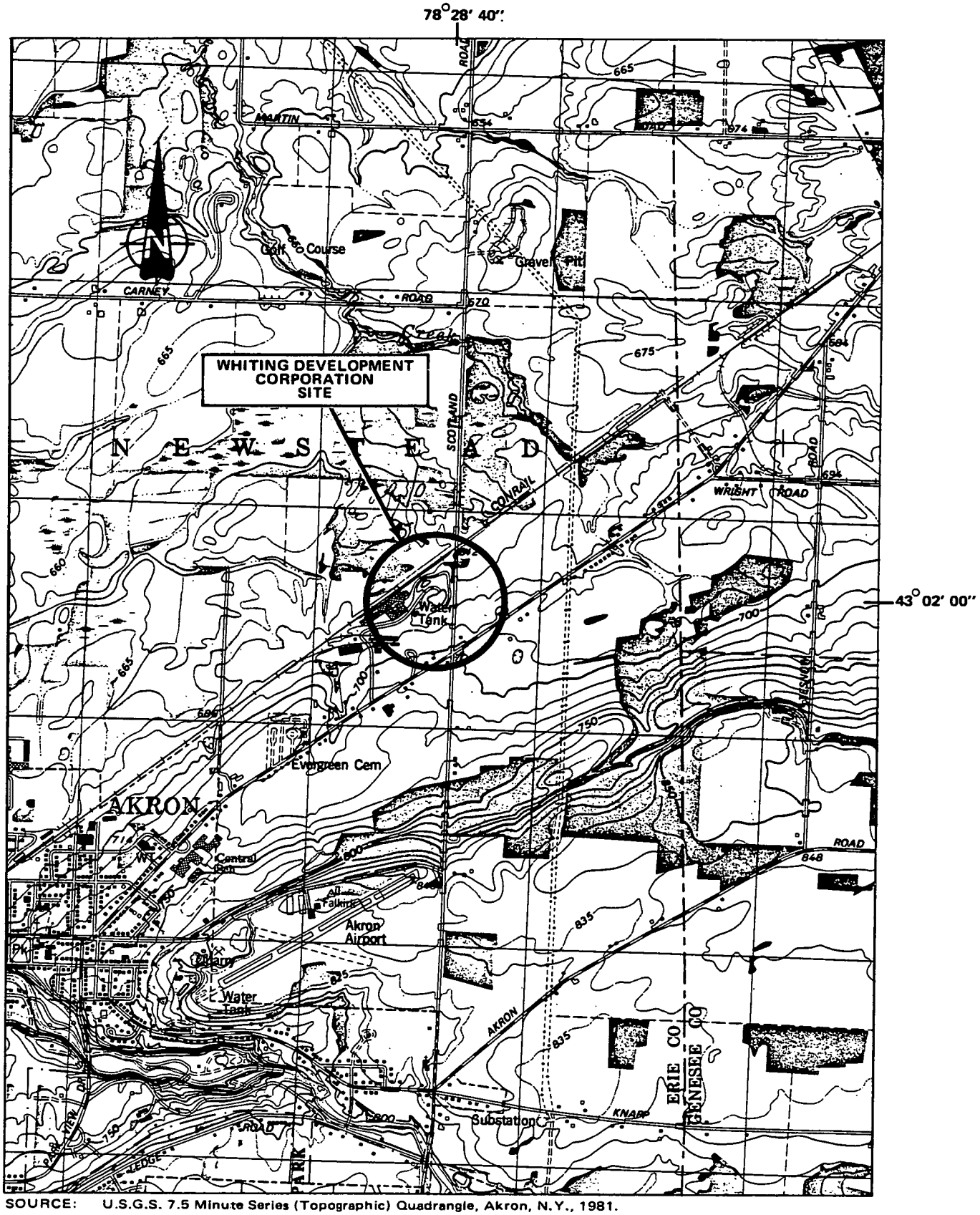
The Whiting Development site was allegedly used by the former owner, Georgia Pacific, for the disposal of waste gypsum products generated at an adjacent manufacturing plant during the production of wallboard. The disposal area is now overgrown with vegetation and is not in operation.

The site comprises approximately 7 acres and contains piles of waste gypsum from 5 to 30 feet high. The former disposal area is approximately 2 miles northeast of the Village of Akron in the Town of Newstead, and is located near the corner of Scotland Road and the abandoned Conrail tracks (see Figure 1-1). A ditch is located along the north and east borders of the site (see Figure 1-2 for Site Map). The site is presently owned by the Whiting Development Corporation which manufactures doors for truck trailers at an on-site facility.

1.2 PHASE I EFFORTS

On July 16, 1987, Ecology and Environment, Inc. (E & E) conducted a site inspection in support of this investigation. Prior to the inspection, available federal, state, county, and municipal files were reviewed. The site inspection consisted of a visual survey of the property that included:

- Overall site conditions;
- Description of vegetation and a survey for stressed vegetation;



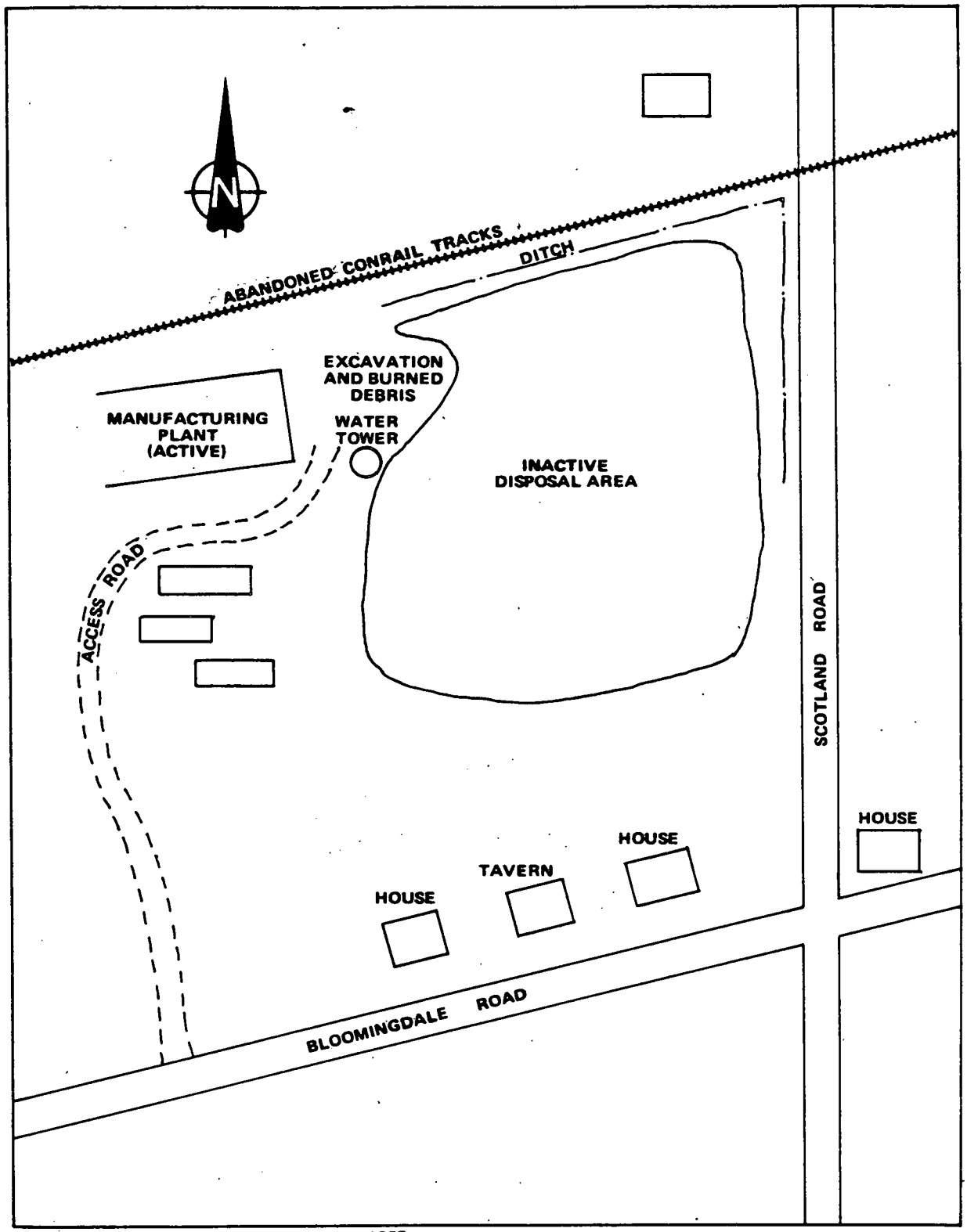
SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle, Akron, N.Y., 1981.

SCALE

0 ½ 1 MILE

0 .5 1 KILOMETER

Figure 1–1 LOCATION MAP



SOURCE: Ecology and Environment, Inc., 1987.

NOT TO SCALE

Figure 1–2. SITE MAP - WHITING DEVELOPMENT CORP. SITE

- Presence of structures on the site;
- Distance to nearest residence;
- Location of nearest agricultural land;
- Location of nearest surface water and wells, and type of use;
- Visual delineation of waste disposal areas;
- Air quality survey using an HNu photoionizer; and
- Photodocumentation of the site.

All observations were recorded in a field logbook and in the United States Environmental Protection Agency (EPA) Site Inspection Report form.

1.3 ASSESSMENT

The site appears to be completely abandoned. At the northwest corner, waste material has been removed and scrap wood was burned. The vegetation is very thick in some areas, and no vegetative stress was observed. Surface water was noted in the ditch along the north and east borders; there is no evidence of leachate in the surface water.

Several small, active manufacturing facilities exist southeast of the site and there are a few houses close to the site (E & E 1987).

1.4 HRS SCORE

A preliminary application of the Hazard Ranking System (HRS) has been made to quantify the risk associated with this site. As the Phase I investigation is limited in scope, not all the information needed to fully evaluate the site is available. An HRS score was completed on the basis of the available data. Absence of necessary data may result in an unrealistically low HRS score.

Under the HRS, three numerical scores are computed to express the site's relative risk or damage to the population and the environment. The three scores are:

- o S_M reflects the potential for harm to humans or the environment from migration of a hazardous substance away from the facility by routes involving groundwater, surface water, or air. It is a composite of separate scores for each of the three routes (S_{GW} = groundwater route score, S_{SW} = surface water route score, and S_A = air route score).

- o S_{FE} reflects the potential for harm from substances that can explode or cause fires.

- o S_{DC} reflects the potential for harm from direct contact with hazardous substances at the facility (i.e., no migration need be involved).

The preliminary HRS score was:

S_M = 25.39 (S_{GW} = 43.4; S_{SW} = 6.78; S_A = 0)
S_{FE} = Not scored
S_{DC} = 25.00

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2. PURPOSE

This Phase I investigation was conducted under contract to the NYSDEC Superfund Program. The purpose of the investigation was to provide a preliminary evaluation of the potential hazardous waste present at the site, to estimate the potential pollutant migration pathways leading off site, and to determine the natural resources or extent of the human population that might be affected by the pollutants. This initial investigation consisted of conducting a detailed file review of available information and a site inspection. The evaluation includes preparation of a narrative site description, initial characterization of the hazardous substances on site, and calculation of a preliminary HRS score. This assessment will be used to determine what additional actions, if any, should be conducted at the site.

3. SCOPE OF WORK

The Phase I effort involved the following tasks:

- A review of available information from state, county, municipal, and private files;
- Interviews with individuals knowledgeable of the site; and
- Physical inspection of the site that included review of USGS 7.5-minute topographic maps. No samples were collected, although air monitoring was performed using an HNu photoionizing organic vapor detector.

Photographs were taken during the site inspection and are included in Appendix A. Table 3-1 lists sources contacted for the Phase I investigation. References are included in Section 7.

Table 3-1

SOURCES CONTACTED FOR THE NYSDEC PHASE I
INVESTIGATION AT WHITING DEVELOPMENT

Agencies Contacted

U.S. Environmental Protection Agency
Region II Office
26 Federal Plaza, Room 900
New York, New York 10278
Contact: Ben Conetta
Telephone No.: (212) 264-6696
Date: 8/3/87
Information Gathered: Preliminary assessment

New York State Department of Environmental Conservation, Region 9
Solid and Hazardous Waste Division and Permitting Division
600 Delaware Avenue
Buffalo, New York 14202
Contact: Lawrence Clare
Telephone No.: (716) 847-4585
Date: 4/29/87
Information Gathered: File search for Whiting Development

New York State Department of Environmental Conservation, Region 9
Division of Water, Fish, and Wildlife
600 Delaware Avenue
Buffalo, New York 14202
Contact: Rebecca Anderson, Jim Farquar
Telephone No.: (716) 847-4550
Date: 6/13/87, 8/26/87
Information Gathered: Floodplains, significant habitats, fisheries resources, plant species of concern, wetlands in vicinity of Whiting Development

New York State Department of Health
Corning Tower
The Governor Nelson A. Rockefeller Empire State Plaza
Albany, New York 12237
Telephone No.: (518) 458-6310
Contact: Lani Rafferty
Date Contacted: April 5, 6, 1989
Information: File search for site history, correspondence, background information

New York State Department of Health
584 Delaware Avenue
Buffalo, New York, 14202
Contact: Linda Rusin
Telephone No.: (716) 847-4500
Date: 5/18/87
Information Gathered: Contact with NYSDOH on May 5, 1987, indicated that files were being transferred from Albany to Buffalo so the files were not accessible. Further correspondence in June 1987 indicated that the office was newly established and file information was extremely limited; therefore, the county health departments were visited in lieu of NYSDOH. NYSDOH files were searched on April 13, 1989.

Erie County Department of Environmental Planning
95 Franklin Avenue
Buffalo, New York 14202
Contact: Kermit Studley
Telephone No.: (716)846-8390
Date: 6/6/87
Information Gathered: File search for Whiting Development

Table 3-1 (Cont.)

United States Department of Agriculture (USDA)
Soil Conservation Service
21 South Grove Road
East Aurora, New York 14731
Contact: John Whitney
Telephone No.: (716) 846-6716
Date: 8/25/87
Information Gathered: Agricultural district lands and distance to productive prime agricultural lands.

Whiting Development Corporation
113 Cedar Street
Akron, New York 14001
Contact: Lawrence Whiting
Telephone No.: (716) 542-4527
Date Contacted: 7/16/87
Information: Site background, ongoing activity.

Town of Newstead, Town Hall
57 John Street
Newstead, New York 14001
Contact: Jane Vaugh, Deputy Town Clerk
Telephone No.: (716) 542-4573
Date Contacted: August 19, 1987
Information: Water supplies, property ownership

City of Buffalo, City Hall
Real Property Assessor
65 Niagara Street
Buffalo, New York 14202
Contact: Tax Assistant
Telephone No.: (716) 851-5733
Date: 6/16/87
Information Gathered: Property ownership for HiView Terrace

Town of West Seneca
Building and Plumbing Inspector's Office
1250 Union Road
West Seneca, New York
Contact: George Monty, Town Engineer
Date: 7/6/87
Telephone No.: (716) 674-5600
Information Gathered: Storm sewer system and use of ground and surface waters in the vicinity of HiView Terrace

National Weather Service
Buffalo Airport, East Terminal
Buffalo, New York 14225
Contact: Donald Wuerch
Telephone No.: (716) 632-1319
Date: 7/7/87
Information Gathered: Weather statistics

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Table 3-1 (Cont.)

Interviews

Contact: Edward Hempling
Agency: Resident
176 HIView Terrace
West Seneca, New York
Telephone No.: (716) 674-1720
Date: 5/11/87
Information Gathered: Site history for HIView Terrace

Contact: Rosemary Reszka
Agency: Resident
94 HIView Terrace
West Seneca, New York
Telephone No.: (716) 674-7982
Date: 5/11/87
Information Gathered: Site history for HIView Terrace

Contact: Harold Sinclair
Agency: Resident
93 HIView Terrace
West Seneca, New York
Telephone No.: (716) 674-4359
Date: 5/12/87
Information Gathered: Site history for HIView Terrace

Contact: Daniel Nelson
Agency: Resident
107 HIView Terrace
West Seneca, New York
Telephone No.: (716) 674-5692
Date: 5/11/87
Information Gathered: Site history for HIView Terrace

4. SITE ASSESSMENT

4.1 SITE HISTORY

The property currently owned by the Whiting Development Corporation (Mr. Whiting acquired the site in 1978) was formerly owned by Certain Teed (1941-1956), Best Wall (1956-1966), and Georgia Pacific (1966-1978) companies (Vaughn 1987). The Georgia Pacific Company owned and operated a wallboard manufacturing plant at the site beginning in the 1920s. During its operation, waste gypsum products were allegedly disposed of at the landfill.

In August 1974, Mr. Fuad El Ibrashi of the Erie County Department of the Environment and Planning (ECDEP) inspected the facility to ascertain the nature of wastewater discharges. He gathered information indicating that a ready-mix joint compound was manufactured at the plant, which contained asbestos, lactic acid casein, polyvinyl acetate, hydroxymethyl cellulose, alkyl-napthalene sodium sulphonate, potassium tripolyphosphate, ethylene glycol, borax, aluminum, zinc oxide, and titanium oxide. The wastewaters were at one time discharged into a ditch which flowed west of the plant to Murder Creek. To prevent pollution of the creek, the ditch was reportedly diked and the wastewater allowed to evaporate. ECDEP's inspection noted an accumulation of a white substance in the ditch. It was not known if this material was ever cleaned up (ECDEP 1984).

On October 1, 1979, Ronald Koczaja from ECDEP performed a site inspection and reported a pile of gypsum, 3 to 4 acres in size and 15 to 20 feet thick. No evidence of leachate was reported (ECDEP 1984A).

The Interagency Task Force on Hazardous Waste conducted a followup investigation and reported a 4- to 5-acre site with a 30-foot-thick mound (ECDEP 1984A).

During a meeting on January 7, 1980, involving ECDEP, NYSDEC, and Lauren Whiting, Mr. Whiting stated that he thought the area was originally a wetlands prior to filling (ECDEP 1980).

On November 27, 1984, Ron Entringer of ECDEP performed a site inspection and reported essentially the same conditions that were found in the 1979 inspection. He also observed revegetation on approximately 50% of the site, which he estimated to be 3 acres in size. Mr. Entringer also reported continued dumping of industrial refuse, a large abandoned transformer, and several drums (Entringer 1984).

On December 20, 1984, ECDEP requested that Whiting Development have the transformer oil tested for polychlorinated biphenyls (PCBs) (ECDEP 1984B).

Mr. Whiting responded in a letter dated January 9, 1985, stating that the drums would be transported to a disposal site and that the transformer oil was tested and no PCBs were detected (Whiting 1985).

The NUS Corporation prepared a Preliminary Assessment for the United States Environmental Protection Agency (EPA) in 1986 (NUS 1986). At this time, NUS determined that the site had been assigned two different EPA TDD numbers; one for Whiting Development and one for Georgia-Pacific. NUS and E & E submitted separate assessments for the same site.

E & E performed a site inspection on July 16, 1987, accompanied by Lauren Whiting, owner of Whiting Roll-up Door. Ten drums were observed at the northwest corner of the site. These drums, labeled "Diesel and Water," appeared to be in good condition. Mr. Whiting could not account for the drums that were noted in Ronald Entringer's field inspection report (Entringer 1984), but claimed that paint residues were continually accumulated at the site. The transformer was inspected and was found to be located on a concrete pad near the manufacturing plant buildings (E & E 1987).

The former disposal area which was estimated at 7 acres in size and 30 feet high, was heavily foliated and overgrown. No activities or disturbances were noted except at the northwest corner, where some excavation had occurred and where the burning of scrap wood was occurring. Several manufacturing buildings were observed just southwest of the disposal area.

No samples were collected from the site. An HNu photoionizing organic vapor detector was used to monitor air quality and no measurements above background were noted.

4.2 SITE TOPOGRAPHY

The Whiting Development site is located within the Erie-Niagara Basin of the Erie-Ontario lowlands in the Town of Newstead, Erie County, New York. The Erie-Ontario lowlands in this area are characterized as having relatively low relief (LaSala 1968). The elevation at the site is 680 feet above mean sea level. The terrain in the immediate area generally slopes to the north (USGS 1981).

The site can be described as a north-south oriented rectangle. It is approximately 1,200 feet long and is bordered on the east by Scotland Road, and the west by a number of manufacturing plants. The site is approximately 250 feet wide and is bordered on the north by a drainage ditch and abandoned Conrail tracks. Between the south edge of the site and Bloomingdale Road are two houses and a tavern (E & E 1987). A water tower is located west of the disposal area, adjacent to the access road.

The site comprises 7 acres and contains steep-sided mounds of gypsum that are up to 30 feet high. An access road extends from Bloomingdale Road to the northwest corner of the disposal area.

4.2.1 Soils

The soil type in the general area is classified as Minoa very fine sandy loam, although soils on site are unclassified. This soil complex is characterized by nearly level, deep, somewhat poorly drained fine sandy loam. During the wet spring months, the soil has a seasonally high water table in the upper part of the subsoil. The permeability is moderate and this soil type is not considered prime agricultural land (USDA SCS 1986).

4.2.2 Wetlands

Two NYSDEC-designated wetlands are located near the site. The largest, AK-7, is 150 acres in size and is located 2,000 feet to the north. Ledge Creek flows through this Class III wetland. Wetland AK-14, located 2,000 feet to the west, is 37 acres in size and is also a Class III wetland (Farquar 1987).

4.2.3 Surface Water

The nearest surface water to the site is a perennial tributary to Ledge Creek which is located 0.1 mile north of the site.

4.2.4 Land Use

The land use in the general vicinity of the Whiting Development site is primarily sparse rural residential, agricultural, and woodland. The Village of Akron is located 1.5 miles southwest of the site and several houses are located along Bloomingdale Road to the south of the site and Scotland Road to the east of the site. Just southwest of the landfill are several small manufacturing plants presently in operation (E & E 1987).

4.2.5 Critical and Sensitive Habitats

Located approximately 1/2 mile to the southeast of the site is Counterfeiters Ledge, a NYSDEC-designated critical and sensitive habitat. This area is a narrow band of land which extends along the Onondaga limestone escarpment in both Erie and Genesee County. It is 25 acres in size and contains calciphilic plants (Farquar 1987).

4.3 SITE HYDROLOGY

4.3.1 Regional Geology and Hydrogeology

The Whiting Development site lies within the Erie-Niagara basin and the Erie-Ontario lowland physiographic province. The overburden in Erie County consists mainly of glacial till, an unconsolidated poorly sorted mix of clay, silt, and/or sand. It forms a thin mantle over the bedrock and exhibits low permeability. The region between the Onondaga Escarpment to the north and the hilly areas to the south also received lacustrine clay and silt deposits during late Pleistocene time from the larger ancestral Great Lakes. These deposits exhibit very low permeabilities. As the ancestral lakes retreated, sandy beach sediments were also deposited in this region. These deposits exhibit relatively high permeabilities (Buehler and Tesmer 1963).

The bedrock in the region is exclusively sedimentary. The shale, limestone, and dolomite units dip gently southward approximately 40 feet per mile. Although the bedrock dips southward, the land surface

is flat or actually increases in elevation to the south. Therefore, the farther south the location, the younger the underlying bedrock (LaSala 1968).

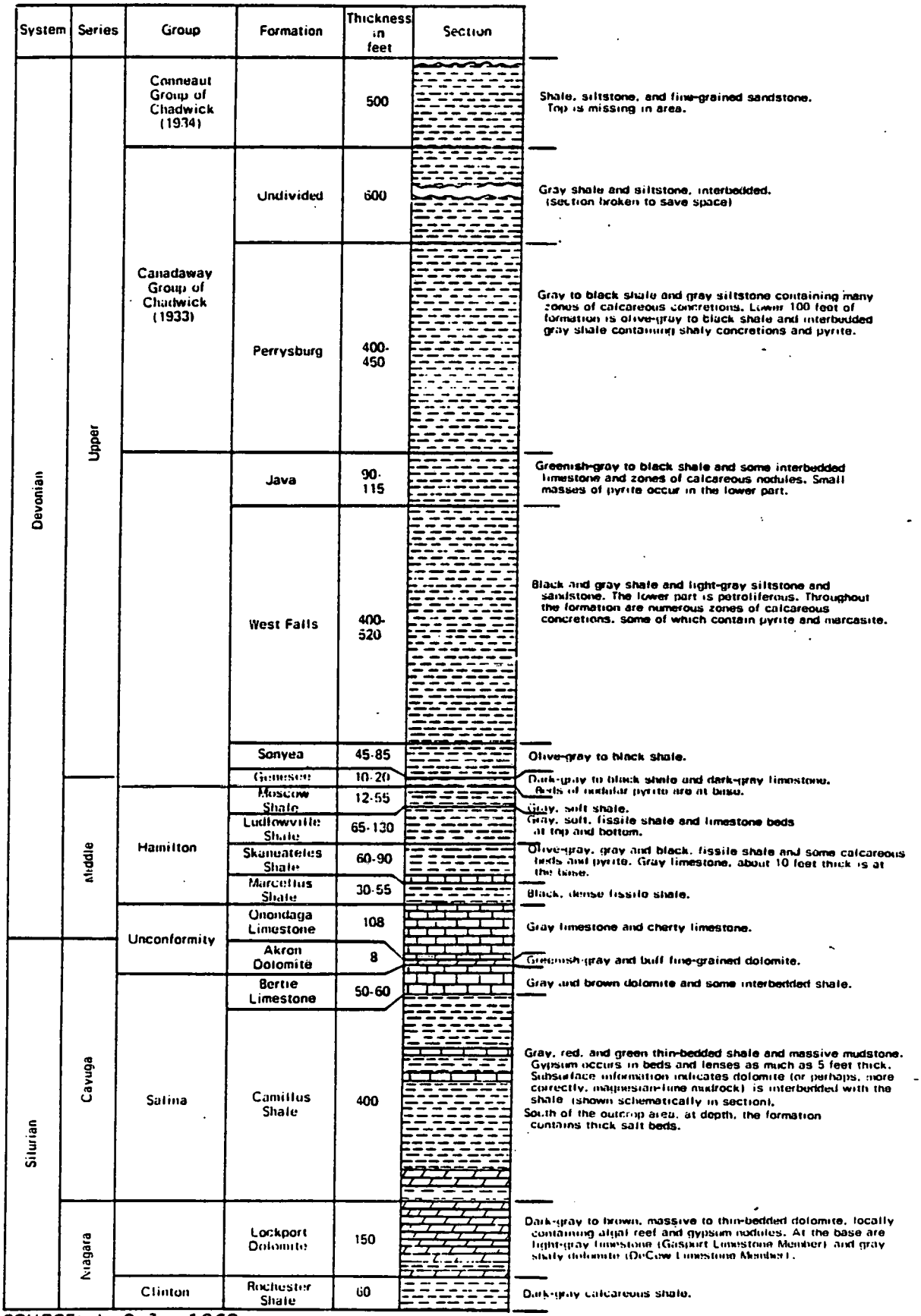
Up to 32 distinct bedrock members have been identified in Erie County (see Figure 4-1). The oldest unit, Silurian in age, underlying the northern part of the county is the Camillus Shale. This member, which is 30 to 100 feet thick, contains significant reserves of groundwater in cavities formed by the dissolution of gypsum (LaSala 1968).

Several limestone members also of Silurian age overlie the Camillus Shale. The Bertie limestone, approximately 50 feet thick, overlies the Camillus Shale and is in turn overlain by the Akron Dolostone, which is about 8 feet thick. Little record of latest Silurian or Early Devonian history is preserved in Western New York. However, the Middle and Late Devonian record is well preserved beginning with the Onondaga Limestone unconformably overlying the Akron Dolostone. The unit comprises three distinct members that cumulatively are approximately 140 feet thick (Buehler 1966).

The Marcellus Shale member overlies the limestone units. This dense, black, fissile shale is approximately 30 to 55 feet thick. This shale, unlike the Camillus Shale, is impermeable. It confines the limestone and Camillus Shale aquifers below (LaSala 1968).

The Skaneateles Formation overlies the Marcellus Shale. This 60- to 90-foot-thick formation is represented by the Stafford Limestone and Levanna Shale. The black, fissile shale is expected to be impermeable and will therefore confine groundwater found in the lower limestone units (Buehler 1966).

Overlying the Skaneateles is the Ludlowville formation represented by the Centerfield Limestone, Ledyard Shale, Wanakah Shale, and Tichenor Limestone members. The shale members contain numerous limestone beds. The Ludlowville Formation is followed by the Moscow Formation represented by the Kashong shale and Windom shale. The Moscow Formation is followed by 2,500 feet of upper Devonian rocks in southwestern New York State consisting of the Genesee, Sonyea, West Falls, Java, Canadaway, Chodakoin, and Cattaraugus formations. These consist almost exclusively of shale members. The Canadaway formation is by



SOURCE: LaSala 1968.

Figure 4–1 BEDROCK UNITS OF THE ERIE-NIAGARA BASIN

far the thickest (up to 1,000 feet) and underlies the southern third of Erie County (LaSala 1968).

Significant amounts of groundwater occur only in the overburden and in the lower bedrock units. The Camillus shale contains numerous cavities formed by the dissolution of gypsum and is thus a very productive aquifer. The Onondaga, Akron, and Bertie Dolomite and limestones contain water in bedding joints widened by dissolution. Vertical fractures in the limestone provide hydraulic connections among the many bedding planes (LaSala 1968).

Very little groundwater is found in the formations above the limestone unit. These formations, principally shale, are impermeable. Some water transmission occurs in small fractures in the bedrock, but no wells of significant yield are found in these units. Groundwater in these regions is obtained mainly from glacial overburden deposits (LaSala 1968).

4.3.2 Site Hydrogeology

There is no specific data available on hydrogeology in the site vicinity, and no wells are located on the site. Two drinking water wells are located just north of the site. No well logs are available for either wells, but information exists indicating that one well is approximately 40 feet deep and is seasonally artesian (Klapa 1987).

The flow of groundwater through the upper bedrock, the Camillus shale, will be dependent on weathering and solution features.

Additional data and information in regard to subsurface features of the site are needed to assess the hydrogeologic conditions at the site.

4.3.3 Hydraulic Connections

The soil and overburden at the site are described as having a moderate permeability (USDA SCS 1986) which may provide a limited hydraulic connection between the surface water and groundwater. The upper bedrock, the Camillus Shale, contains significant reserves of groundwater stored in cavities formed by the dissolution of gypsum (La Sala 1968).

Additional data and information are needed to better assess the hydraulic connections at the site.

4.4 SITE CONTAMINATION

According to the background information, only transformer oil samples have been collected at the Whiting Development site; no PCBs were detected in these samples. The disposal area contains primarily waste gypsum. The former owner and operator, Georgia Pacific, also manufactured a joint compound which contained asbestos, lactic acid casein, polyvinyl acetate, hydroxymethyl cellulose, alkyl-napthalene sodium sulphonate, potassium tripolyphosphate, ethylene glycol, borax, aluminum, zinc oxide, and titanium oxide (ECDEP 1984A).

Gypsum is the generic name for calcium sulfate ($CaSO_4$) or calcium sulfate dihydrate ($CaSO_4$ $2H_2O$). The dihydrate form decomposes when heated and emits toxic SOx fumes (Sax 1979). It is not toxic as a solute in drinking water.

Asbestos is the generic name for naturally occurring mineral silicate fibers. It has a toxicity rating of 3, and is listed as a carcinogen by the EPA (Sax 1979).

It is unknown if asbestos or any of the joint compound constituents exist at the site. Additional data obtained by the collection and analysis of samples are needed to better assess the site contamination, if any. This is addressed further in Section 6.

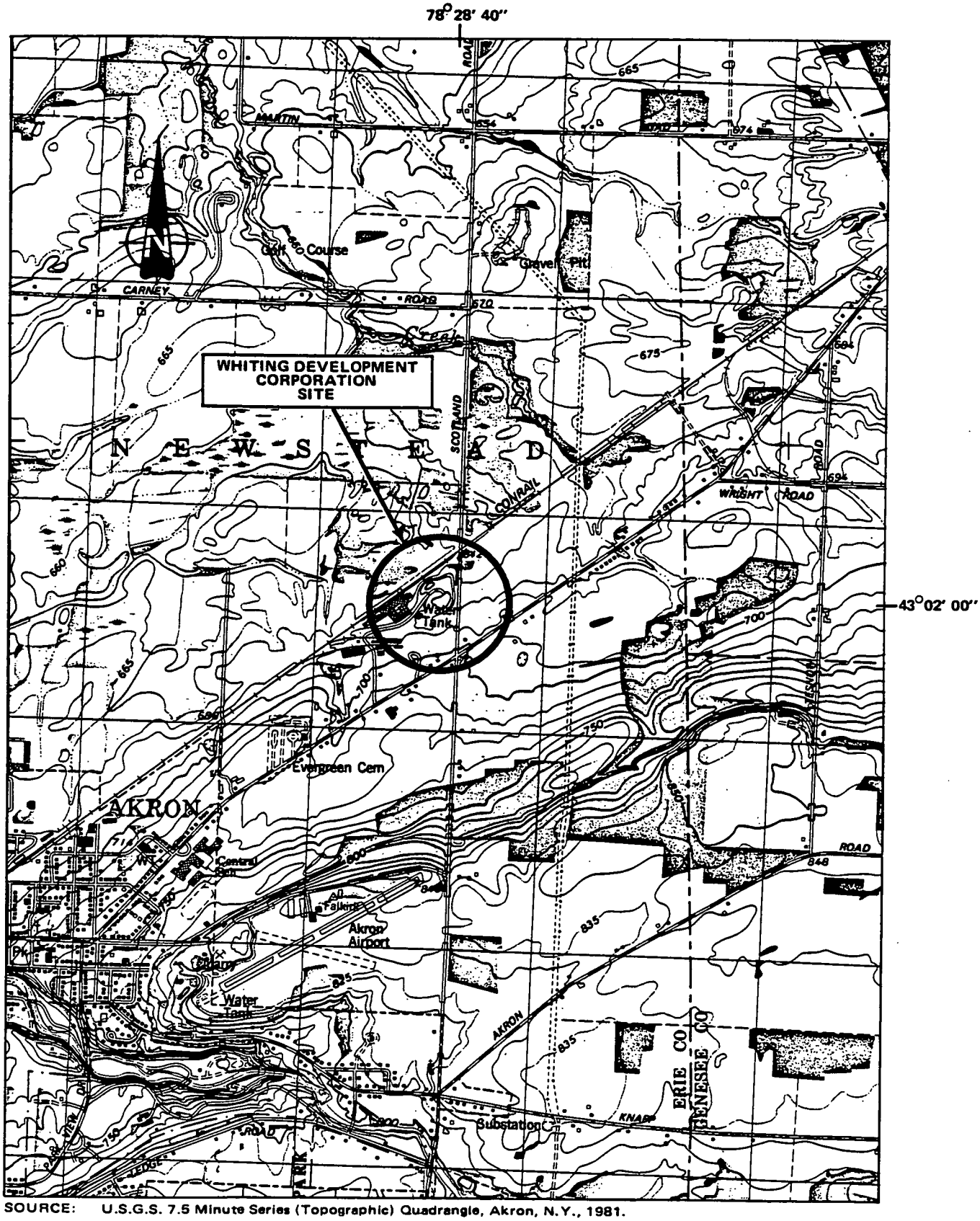
5. PRELIMINARY APPLICATION OF HAZARD RANKING SYSTEM

5.1 NARRATIVE SUMMARY

The Whiting Development Corporation landfill covers approximately 7 acres in the Town of Newstead, Erie County, New York State (see Figure 5-1). The Village of Akron is 0.75 mile southwest of the site; Akron Falls Park, a county recreation area, is approximately 1.5 miles south; the Tonawanda Indian Reservation is approximately 2 miles northeast; the Tonawanda Wildlife Management Area is located 4 miles north; the Iroquois National Wildlife Refuge is approximately 6 miles northeast; and the John White Memorial State Game Farm is 5 miles northeast. The Whiting site is located in a commercial development area surrounded by rural agricultural land. The nearest large residential center is southwest in the Village of Akron; other residences are located on main roads.

Site topography is essentially flat. The site is located in the Erie-Niagara Basin, in the Erie-Ontario physiographic province. Tonawanda Creek is located 2.5 miles to the east-northeast and Murder Creek is approximately 1.5 miles south. The site does not lie in a 100-year floodplain.

The Whiting landfill was owned and operated by Georgia Pacific from the 1920s to 1978 as a landfill for waste gypsum products which result from the production of wallboard and joint compound. Asbestos may also be a contaminant at the site because of these operations. The Whiting Development Corporation purchased the property in 1978, and some material was removed and reportedly used for fill at the Town of Newstead Landfill. This landfill has not been used for waste disposal by Whiting. The site is not in use at the present time and is heavily foliated.



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle, Akron, N.Y., 1981.

SCALE

0 ½ 1 MILE

0 .5 1 KILOMETER

Figure 5-1 LOCATION MAP

FIGURE 1

HRS COVER SHEET

Facility Name: Whiting Development Corporation

Location: Bloomingdale Road, Newstead, New York

EPA Region: II

Person(s) in Charge of Facility: Lauren Whiting

113 Cedar Street

Akron, New York 14001

Name of Reviewer: A. Mark Sienkiewicz Date: September 14, 1987

General Description of the Facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action; etc.)

The site is a former waste gypsum landfill, 7 acres in size, located at the corner of Bloomingdale and Scotland roads in the Town of Newstead, Erie County, New York. It is possibly contaminated with asbestos and organics which were used by the former owner, Georgia Pacific, to manufacture wallboard and joint compound.

Air and groundwater are routes of concern since the landfill area is not covered or lined. Therefore, the potential exists for airborne contaminants, possibly including asbestos, and the migration of unknown contaminants into the groundwater.

Scores: S_M = 25.39 (S_{gw} = 43.4 S_{sw} = 6.78 S_a = 0)

S_{FE} = Not Scored

S_{DC} = 25.00

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 (3)	2	6	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
Physical State	0 (1) 2 3	1	1	3	
Total Route Characteristics Score			11	15	
3 Containment	0 1 2 (3)	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 (20) / 24 30 32 35 40	1	20	40	
Total Targets Score			29	49	
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			24,882	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} = 43.4			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 (2) 3	2	4	6	
Physical State	0 (1) 2 3	1	1	3	
Total Route Characteristics Score			7	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	0 (1) 2 3	2	2	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			8	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			4,368	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{SW} =	6.78		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]			0	35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a =	0		

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	43.4	1,883.56
Surface Water Route Score (S_{sw})	6.78	46.0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1,929.56
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		43.93
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		25.39

FIGURE 10
WORKSHEET FOR COMPUTING S_M

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Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} = Not Scored			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 (3)	1	3	3	8.2
3 Containment	0 (15)	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3.	4	0	12	
Total Targets Score			8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			5,400	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} = 25.00			

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

Instructions: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

Facility Name: Whiting Development Corporation

Location: Bloomingdale Road, Newstead, New York

Date Scored: September 14, 1987

Person Scoring: A. Mark Sienkiewicz

Primary Source(s) of Information (e.g., EPA region, state, FIT, etc.):

ECDEP and NYSDEC files
Site Inspection
USDA SCS Soil Survey
USGS Topographical Maps

Factors Not Scored Due to Insufficient Information:

Comments or Qualifications:

Fire and Explosion not scored as site has not been declared a fire hazard by a fire marshal. For the purposes of the preliminary HRS scoring, it was assumed that the onsite waste materials were hazardous, since no analytical data of the waste material exists.

Although gypsum is rated highly toxic as it can emit SOx fumes when heated, it is not toxic as a solute in drinking water. Thus S_{GW} and S_{SW} may be unrealistically high.

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GROUNDWATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (3 maximum):

No observed or reported release into groundwater.

Rationale for attributing the contaminants to the facility:

NA

* * *

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Unconsolidated deposits and Camillus Shale bedrock.
Ref. No. 14

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Ground surface
Ref. No. 10

Depth from the ground surface to the lowest point of waste disposal/storage:

Unknown

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

36 inches
Ref. No. 3

Mean annual lake or seasonal evaporation (list months for seasonal):

27 inches
Ref. No. 3

Net precipitation (subtract the above figures):

9 inches
Ref. No. 3

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Soil type Dp or dump, unclassified soil. Nearest classified soil type is Mn, or Minoa.
Ref. No. 2

Permeability associated with soil type:

0.6 - 2.0 in/hr or 4.2×10^{-4} to 1.4×10^{-3} cm/sec
Ref. No. 2

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Solid, unconsolidated, unstabilized
Ref. No. 7

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

No methods of containment exist on this site.
Ref. No. 7

Method with highest score:

NA

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Calcium sulfate dihydrate
Calcium sulfate
Ref. No. 6

Compound with highest score:

Calcium sulfate dihydrate
Toxicity rating = 3; Persistence = 3 (metal salt)
Ref. No. 7

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (give a reasonable estimate even if quantity is above maximum):

338,800 cubic yards
Ref. No. 7

Basis of estimating and/or computing waste quantity:

assume waste depth = 30 ft = 10 yd
7 acres = 33,880 yds^2
33,880 yds^2 x 10 yd = 338,800 cubic yards
Ref. No. 7

* * *

5. TARGETS

Groundwater Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water
Ref. No. 8

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Mr. David Diorio, 7070 Scotland Road, Akron, New York, directly north of site
Ref. No. 8

Distance to above well or building:

1/8 mile
Ref. No. 8

Population Served by Groundwater Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Estimated 60 houses not on supplied community water x 3.8 = 228 persons
Ref. Nos. 9, 11, 13

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None known to exist
Ref. Nos. 15, 16

Total population served by groundwater within a 3-mile radius:

228 persons
Ref. Nos. 9, 11, 13

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SURFACE WATER ROUTE

1. OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

No data available to document release

Rationale for attributing the contaminants to the facility:

NA

* * *

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Average facility slope - banks very steep
>8%, est. 20%
Ref. Nos. 7, 9

Name/description of nearest downslope surface water:

Unnamed perennial tributary to Ledge Creek
Ref. No. 9

Average slope of terrain between facility and above-cited surface water body in percent:

0 - 3%
Ref. No. 9

Is the facility located either totally or partially in surface water?

No
Ref. No. 7

Is the facility completely surrounded by areas of higher elevation?

No
Ref. Nos. 7, 9

1-Year 24-Hour Rainfall in Inches

2.1 inches
Ref. No. 3

Distance to Nearest Downslope Surface Water

1/2 mile
Ref. No. 7, 9

Physical State of Waste

Solid, unconsolidated, unstabilized
Ref. No. 7

* * *

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

No methods of containment observed onsite
Ref. No. 7

Method with highest score:

* * *

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Calcium sulfate
Calcium sulfate dihydrite (gypsum)
Ref. No. 6

Compound with highest score:

Calcium sulfate dihydrite
Toxicity = 3 Persistence = 3 (metal salt)
Ref. No. 6

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (give a reasonable estimate even if quantity is above maximum):

338,800 cubic yards gypsum
Ref. No. 7

Basis of estimating and/or computing waste quantity:

7 acres = 33,880 square yards
33,880 x 10 yds = 338,800 cubic yards
Ref. No. 7

* * *

5. TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Perennial tributary leads to Ledge Creek which flows into state designated wetland (important resource).
Ref. Nos. 5, 9

Is there tidal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

>2 miles
Ref. Nos. 5, 9, 12

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

State designated wetland AK-7, 0.4 mile to north
Ref. Nos. 5, 9, 12

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

>1 mile
(0.6 mile to Counterfeiters Ledge, southeast, no identified endangered species).
Ref. No. 12

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None
Ref. No. 13

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

NA

Total population served:

NA

Name/description of nearest of above water bodies:

NA

Distance to above-cited intakes, measured in stream miles:

NA

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected:

No data exists documenting an air release

Date and location of detection of contaminants:

NA

Methods used to detect the contaminants:

HNu photoionization
Ref. No. 7

Rationale for attributing the contaminants to the site:

NA

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Asbestos
Ref. No. 6

Most incompatible pair of compounds:

NA

Toxicity

Most toxic compound:

Asbestos
Ref. No. 6

Hazardous Waste Quantity

Total quantity of hazardous waste:

338,800 cubic yards
Ref. No. 7

Basis of estimating and/or computing waste quantity:

7 acres = 33,880 square yards;
33,880 x 10 = 338,800 cubic yards
Ref. No. 7

* * *

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3. TARGETS .

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi (0 to 1 mi) 0 to 1/2 mi 0 to 1/4 mi

380 persons
Ref. No. 1

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Site is not near coastal area
Ref. No. 5

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

0.4 mile
Ref. Nos. 5, 12

Distance to critical habitat of an endangered species, if 1 mile or less:

>1 mile
Ref. No. 12

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Site is on commercial/industrial development
Ref. Nos. 7, 9

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

.25 mile
Ref. No. 9

Distance to agricultural land in production within past 5 years, if 1 mile or less:

1,000 feet
Ref. No. 2

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

1,000 feet
Ref. No. 2

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within the view of the site?

No
Ref. No. 4

FIRE AND EXPLOSION

1. CONTAINMENT — Not scored.

Hazardous substances present:

Possible asbestos
Ref. No. 7

Type of containment, if applicable

Open dump
Ref. No. 7

* * *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

HNu photoionizer; no measurements above background were observed.
Ref. No. 7

Ignitability

Compound used:

NA

Reactivity

Most reactive compound:

NA

Incompatibility

Most incompatible pair of compounds:

NA

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

338,800 cubic yards
Ref. No. 7

Basis of estimating and/or computing waste quantity:

7 acres = 33,880 square yards;
33,800 x 10 = 338,800 cubic yards
Ref. No. 7

* * *

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3. TARGETS

Distance to Nearest Population

0.1 mile
Ref. No. 9

Distance to Nearest Building

0.1 mile
Ref. No. 9

Distance to a Sensitive Environment

Distance to wetlands:

0.4 mile
Ref. Nos. 5, 12

Distance to critical habitat:

>1 mile
Ref. No. 12

Land Use

Distance to commercial/industrial area, if 1 mile or less:

0.1 mile
Ref. No. 9

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

NA

Distance to residential area, if 2 miles or less:

.25 mile
Ref. No. 9

Distance to agricultural land in production within past 5 years, if 1 mile or less:

1,000 feet
Ref. No. 2

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

1,000 feet
Ref. No. 2

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within the view of the site?

No
Ref. No. 4

Population Within 2-Mile Radius

4,162
Ref. No. 1

Buildings Within 2-Mile Radius

1,473
Ref. No. 1

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DIRECT CONTACT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No observed direct contact incidents documented in background information

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

No barriers exist on site
Ref. No. 7

* * *

3. CONTAINMENT

Type of containment, if applicable:

No containment measures observed
Ref. No. 7

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Calcium sulfate
Calcium sulfate dihydrite
Ref. No. 6

Compound with highest score:

Calcium sulfate dihydrite
Toxicity = 3
Ref. No. 6

* * *

5. TARGETS

Population within one-mile radius

380 persons
Ref. No. 1

Distance to critical habitat (of endangered species)

>1 mile
0.6 mile to Counterfeiters Ledge, critical habitat of calciphilic plants, no endangered species identified
Ref. No. 12

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REFERENCES

If the entire reference is not available for public review in the EPA regional files on this site, indicate where the reference may be found:

Reference Number	Description of the Reference
1	Graphical Exposure Modeling System, June 1987, Environmental Protection Agency, Office of Pesticides and Toxic Substances, Federal Plaza, New York, New York. Document location: E & E, Buffalo, New York.
2	U.S. Department of Agriculture, Soil Conservation Service, 1986, Soil Survey of Erie County 1986. Document location: E & E, Buffalo, New York.
3	U.S. Department of Commerce, National Climatic Center, 1979, Climatic Atlas of the United States. Document location: E & E, Buffalo, New York.
4	U.S. Department of the Interior, 1976, National Register of Historic Places, Washington, DC. Document location: E & E, Buffalo, New York.
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7	Ecology & Environment, Inc., July 16, 1987, Site Inspection Logbook and Photographs. Document location: E & E, Buffalo, New York.
8	Diorio, David, August 21, 1987, personal communication, resident of Town of Newstead. Document location: E & E, Buffalo, New York.
	Hyder, George, 1989, personal communication, Akron, New York.
9	USGS, 1981, 7.5-Minute Topographic Map, Akron, New York Quadrangle. Document location: E & E, Buffalo, New York.
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12	Farquar, James, August 29, 1987, personal communication, NYSDEC, York. Document location: E & E, Buffalo, New York.
13	New York State Department of Health, 1982, Community Water Supply Source Map, Albany, New York. E & E, Buffalo, New York.
14	La Sala, A.M., 1968, State of New York Conservation Department, Groundwater Resources of the Erie-Niagara Basin, Albany, New York. Document location: E & E, Buffalo, New York.
15	Whitney, John, January 10, 1989, personal communication, United States Department of Agriculture, Soil Conservation Service, East Aurora, New York.
16	Hanson, Art, January 11, 1989, personal communication, United States Department of Agriculture, Soil Conservation Service, Batavia, New York.

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DRAFT

GRAPHICAL EXPOSURE MODELING SYSTEM

(GEMS)

USER'S GUIDE

VOLUME 1. CORE MANUAL

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
EXPOSURE EVALUATION DIVISION
Task No. 3-2
Contract No. 68023970
Project Officer: Russell Kinerson
Task Manager: Loren Hall

Prepared by:

GENERAL SCIENCES CORPORATION
6100 Chevy Chase Drive, Suite 200
Laurel, Maryland 20707

Submitted: February, 1987

1. INTRODUCTION

The Graphical Exposure Modeling System (GEMS) is an interactive computer system developed by General Sciences Corporation under the auspices of the Modeling Section in the Exposure Evaluation Division (EED), Office of Toxic Substances (OTS) of the Environmental Protection Agency (EPA). It provides a simple interface to environmental modeling, physiochemical property estimation, statistical analysis, and graphic display capabilities, with data manipulation which supports all of these functions. An overview of the basic GEMS components is shown in Figure 1-1. The system is installed on the OTS VAX 11/780 computer in Research Triangle Park, North Carolina, and is accessible through dial-up lines.

GEMS is being developed to support integrated exposure analyses at OTS. Its purpose is to provide environmental researchers and analysts with a set of sophisticated tools to perform exposure assessments of toxic substances without requiring them to become familiar with most aspects of computer science or programming.

GEMS is designed under a unique concept which integrates the computerized tools of graphics, mapping, statistics, file management, and special functions such as modeling and physiochemical property estimation, under a user-oriented and simple-to-learn interface. GEMS prompts the user or provides a menu for each action to be performed. The following features provide users with great flexibility during the GEMS execution:

- HELP commands - When you are using the GEMS system, you may not always have a user's manual readily available and/or you may need to see the format and type of a command or an answer before you enter it. Various HELP commands are available in GEMS which provide such information.

- Recovering from errors - If you enter a command or a response incorrectly, the system issues an error message and reprompts you for the correct information.

- Built-in defaults for model execution - GEMS is designed to guide inexperienced users through the execution of selected models. Default responses are usually available when you cannot specify a choice or supply an input to a prompt during model execution.

- Data management of modeling results - Data generated from execution of the SESOIL, ISC, SWIP, or AT123D models may be stored automatically in GEMS. These data may be accessed or analyzed via GEMS' file management, graphics, and statistics operations.

The purpose of this document is to describe GEMS from the user's point of view. It is intended as a comprehensive guide to the use of GEMS for personnel who have no specialized knowledge of computer programming. However, a working knowledge of environmental modeling is necessary for complete and accurate use of the system.

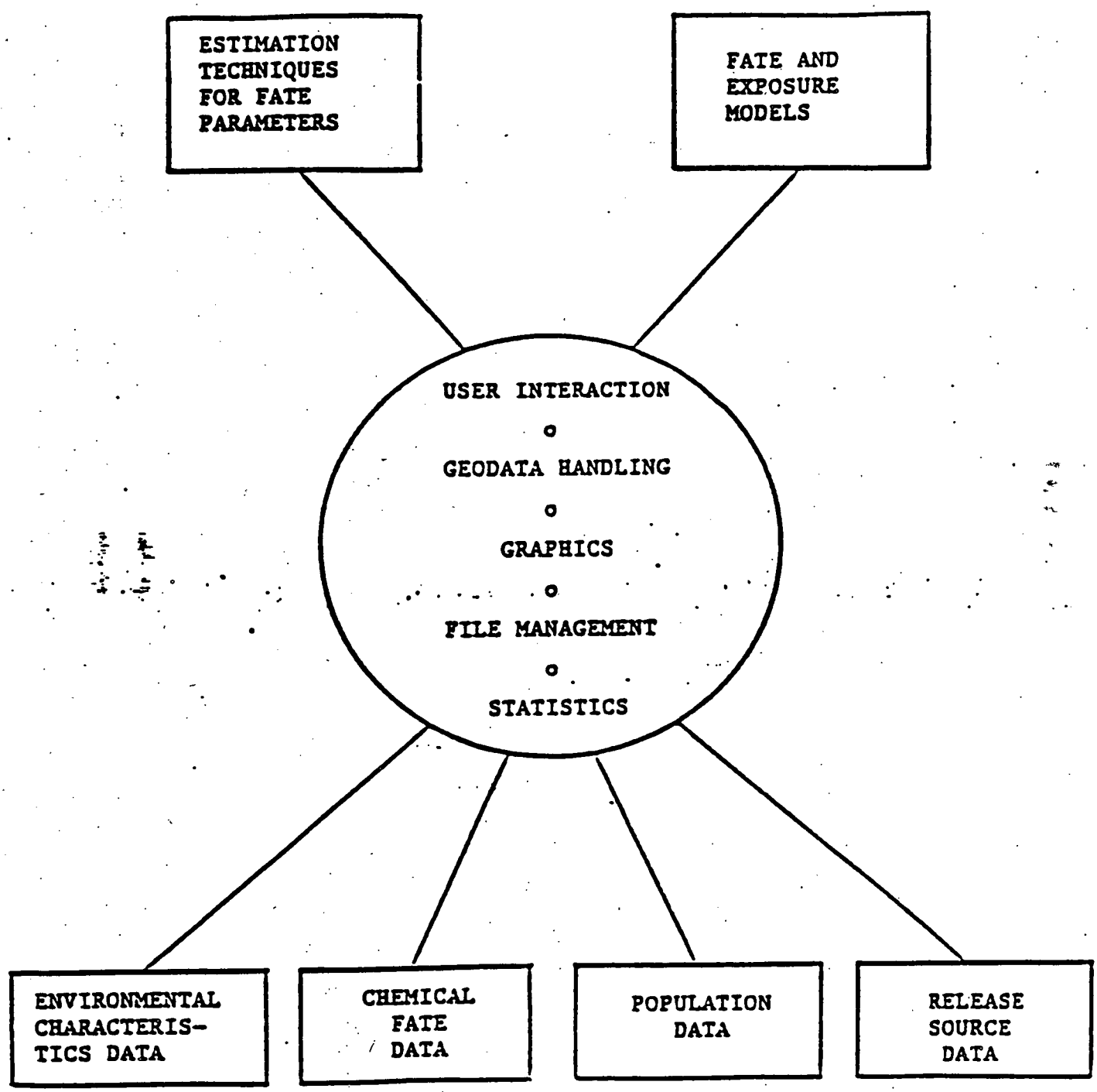

FIGURE 1-1. Components of the Graphical Exposure Modeling System (GEMS)

REFERENCE NO. 2

United States Department of Agriculture

Soil Conservation Service

In cooperation with the Cornell University Agricultural Experiment Station

Soil Survey of Erie County, New York

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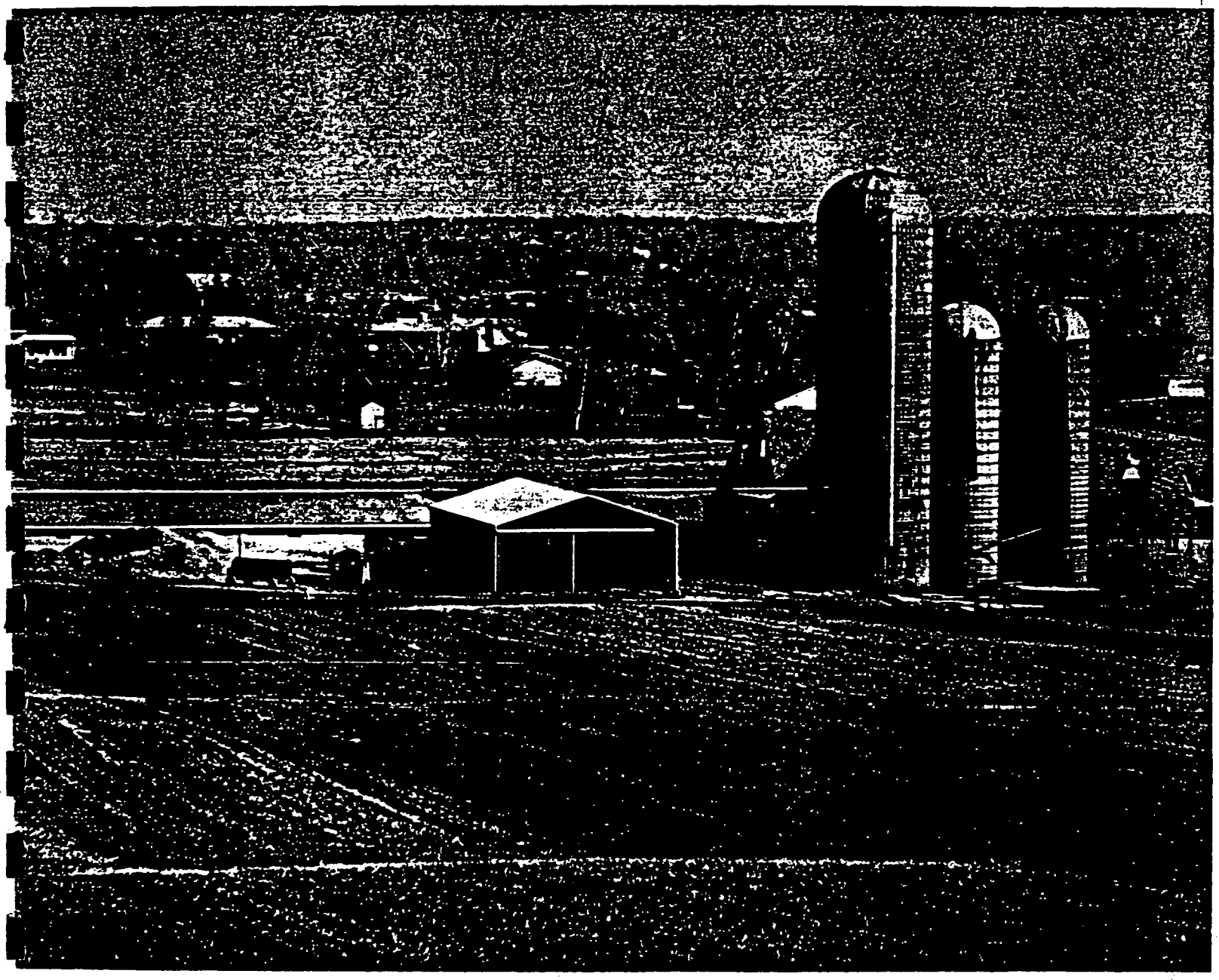
591
G3803.E6



lower part. The substratum to a depth of 60 inches is mottled, olive silty clay loam.

Included with this soil in mapping are small intermingled areas of 3 acres or less of the Schuyler, Orpark, and Hornell soils. The moderately well drained Schuyler soils are higher and are moderately steep. The Orpark soils are underlain by bedrock at a depth of 20 to 40 inches. The Hornell soils have a very high clay content in the subsoil. Also included are sizable areas of an unnamed soil that is similar to the Derb soil but has more sand and shale fragments in the subsoil.

From November through May this Derb soil has a perched seasonal high water table in the upper part of the subsoil. Permeability is moderate or moderately slow in the subsoil and slow in the substratum. The available water capacity is high, and runoff is medium. Shale fragments make up 10 percent or less of the surface layer and subsoil. Bedrock is as shallow as 40 inches below the surface in some areas. In unlimed areas, the surface layer and subsoil are strongly acid or very strongly acid.

Seasonal wetness and slope are limitations for farming and urban uses of this Derb soil. Most areas of this soil are in woodland or pasture or are idle.

This soil is poorly suited to most cultivated crops, unless drained. Interceptor drains that divert runoff and subsurface seepage make earlier cultivation of most fields possible. Erosion is a serious hazard on this silty soil. Keeping tillage to a minimum, using cover crops, incorporating crop residues into the soil, tilling at the proper soil moisture content, tilling on the contour, stripcropping, and rotating crops help promote good tilth and reduce the erosion hazard.

Hay and pasture plants that can withstand seasonal wetness do well, particularly if this soil is adequately limed. Overgrazing and grazing when the soil is wet are major concerns of pasture management because they restrict plant growth and may lead to the loss of the pasture seeding. Grazing when the soil is wet also causes it to compact and puddle.

The potential of this soil for wood crops is fair. Seasonal wetness limits equipment use on this soil, increases seedling mortality, and restricts rooting depth, which causes uprooting of trees during windstorms. Placing logging trails across the slope reduces trail gullying and erosion.

The seasonal wetness, slow permeability in the substratum, high risk of frost damage, and slope are serious limitations for most urban uses of this soil. Interceptor drains that divert runoff and subsurface seepage reduce the wetness around foundations. Lawns and gardens usually require liberal applications of lime because the soil is very acid. Where bedrock is nearly 40 inches below the surface, excavation is difficult. Construction sites should be revegetated as soon as possible to minimize the serious erosion hazard.

This Derb soil is in capability subclass IIIe.

Dp—Dumps. This miscellaneous area consists mostly of excavations that are filled or to be filled with rubbish and debris. Some areas consist of piles of rubbish where the landscape has been only slightly altered by man. More commonly, landfills are made by removing the soil and subsequently dumping trash and refuse into the excavated area. The refuse is covered, partially covered, or mixed with earth material. These areas are usually 3 to 50 feet deep. The sides are steep, and rubbish, consisting mostly of garbage, trash, old tires, bottles, cans, slabs of asphalt, and discarded appliances, lines the pit floor. The depth of the refuse and amount of soil covering are quite variable.

Included in mapping are small pools of water on some pit floors. These areas are irregular in shape, depending on the topography and ownership boundaries. They range from 3 to 160 acres or more.

Dumps usually have no vegetation, but some dumps have scattered bushes, grass, and other plants if the cover material has not been disturbed for a long period. The degree of wetness on these sites varies from dry to ponded, depending on the type of soil deposited and the extent of grading.

The suitability of these areas for urban or recreational uses is quite variable. Often the sites have a pungent odor, poor stability, unsanitary effluent, and rodent infestations, which make them undesirable for these uses. Onsite investigation of each site is necessary to determine its reclamation value for other proposed uses. Some areas can be reclaimed for farming or woodland.

This map unit is not assigned a capability subclass.

Du—Dumps, slag. This miscellaneous unit consists of mounds of iron ore residue. These areas were created by the dumping of waste material from the steel mills located in the cities of Buffalo and Lackawanna. The depth of these deposits varies, but mostly ranges from 3 to 60 feet. In some areas the sides of mounds are steep, but in most areas they are gently sloping or sloping. Many of these slag piles have been formed and shaped by grading. Included in mapping are small pools of water. The areas are commonly irregular in shape, depending on the nature of the deposited material and ownership boundaries. They range from 50 to 100 acres or more.

This map unit, consisting of iron slag, usually has no vegetation, although some older areas have scattered bushes and grasses. The areas are usually quite droughty.

The suitability of these areas for urban, recreational, farming, and woodland uses is generally very poor. Onsite investigation is needed to determine the suitability and limitations for any proposed use.

This Dumps, slag, unit is not assigned a capability subclass.

Ed—Edwards muck. This level soil is very poorly drained. It formed in well decomposed organic material

The potential of this soil for wood crops is fair to good, but only a small acreage is wooded. Machine planting of seedlings is usually practical in large areas of this soil. Seedling mortality and uprooting of trees during windstorms are usually not hazards. Although erosion is usually not hazard, skid trails should be placed across the slope to reduce trail gullying.

The seasonal high water table, very slow permeability in the fragipan and substratum, and slope are serious limitations for many urban uses of this soil. Interceptor drains divert runoff and seepage around buildings and dwellings. Because erosion is a hazard where the soil is disturbed during construction, disturbed areas need to be revegetated as soon as possible. Liberally applying lime and fertilizer and watering during dry periods help establish and maintain high quality lawns.

This Marilla soil is in capability subclass IIIe.

Mg—Middlebury silt loam. This nearly level soil is deep and moderately well drained to somewhat poorly drained. It formed in alluvial deposits on flood plains. Slope ranges from 0 to 3 percent but is mostly less than 2 percent. Areas of this soil are elongated or irregular in shape and are generally parallel to the adjacent stream. Most areas range from 5 to 30 acres.

Typically, this soil has a surface layer of dark grayish brown silt loam about 9 inches thick. The subsoil extends to a depth of 37 inches. It is dark brown silt loam in the upper part; mottled, dark brown silt loam in the middle part; and mottled, dark brown very fine sandy loam in the lower part. The substratum to a depth of 60 inches or more is dark brown stratified sand and silt in the upper part and dark brown stratified fine sand and gravel in the lower part.

Included with this soil in mapping are small intermingled areas of the Tioga and Teel soils. The Tioga soils are on slightly elevated, convex parts of the flood plain. The Teel soils are high in silt and low in sand content. Also included in mapping are small areas of a soil in slight depressions that is similar to this Middlebury soil but more poorly drained. Areas of included soils range up to 3 acres.

This Middlebury soil floods during most years early in the spring and in heavy rainy periods. A seasonal high water table rises into the subsoil from February through April and is controlled by adjacent streams. Permeability is moderate in the subsoil. The available water capacity is high, and runoff is slow. In unlimed areas, the surface layer ranges from strongly acid to slightly acid and the subsoil and substratum are medium acid to neutral. Depth to bedrock is generally 5 feet or more.

The soil is suitable for farming but poorly suited to urban uses because of the flood hazard. Most of the acreage is farmed or in woodland.

This Middlebury soil is suited to cultivated crops (fig. 6). Flooding can delay planting or cause crop damage in some years, but is usually not a problem. The seasonal high water table also can delay tillage and planting, especially in low lying areas. Wetness can be minimized by installing subsurface drains, if adequate outlets are available. Keeping tillage to a minimum, using cover crops, returning crop residues to the soil, plowing at the proper moisture level, and including sod crops in the cropping system improve tilth and maintain the organic matter content, which lead to increased crop production. Streambanks need protection in some areas to prevent lateral erosion of the fields.

This soil is well suited to pasture and hay. Proper stocking, rotation of pastures, yearly mowing, and deferment of grazing during wet periods are the chief management needs.

The potential of this soil for wood crops is good. The hazard of erosion, restricted use of equipment, and seedling mortality are only slight problems. Uprooting of trees during windstorms is generally not a problem.

Flooding, seasonal wetness, and high risk of frost damage are serious limitations for most urban uses of this soil. The hazard of flooding is also a problem for many recreational uses.

This Middlebury soil is in capability subclass IIw.

Mh—Minoa very fine sandy loam. This nearly level soil is deep and somewhat poorly drained. It is in broad, flat areas that were deltas or beaches of glacial lakes. These areas are elongated or irregular in shape and range from 3 to 100 acres, but most of these areas are less than 50 acres. In the southern part of the county, this soil is in small, low areas or along drainageways that contain sandy outwash deposits. These areas are elongated and mostly range from 3 to 40 acres. Slope ranges from 0 to 3 percent.

Typically, this soil has a surface layer of very dark grayish brown very fine sandy loam about 9 inches thick. The subsoil extends to a depth of 40 inches. It is mottled, light yellowish brown very fine sandy loam in the upper part; mottled, pale brown loamy very fine sand in the middle part; and mottled, grayish brown loamy very fine sand in the lower part. The substratum to a depth of 55 inches is light brownish gray loamy very fine sand.

Included with this soil in mapping are small areas of the Cosad, Galen, Elnora, Raynham, Niagara, and Lamson soils. The Cosad soils formed in sandy deposits underlain by clayey lacustrine material. The moderately well drained Galen and Elnora soils are on small higher knolls than this Minoa soil. The Raynham and Niagara soils formed in dominantly silty deposits. The poorly drained to very poorly drained Lamson soils are in drainageways or in small depressions. Also included are small areas of the gently sloping Minoa soil; soils that have strata several inches thick of silt, clay, or densely compacted sand in the subsoil; and in the northern part of the county, large areas of a soil that is similar to this Minoa soil but has varved silt loam and silty clay in the substratum. Areas of included soils range from 1/2 acre to 3 acres.

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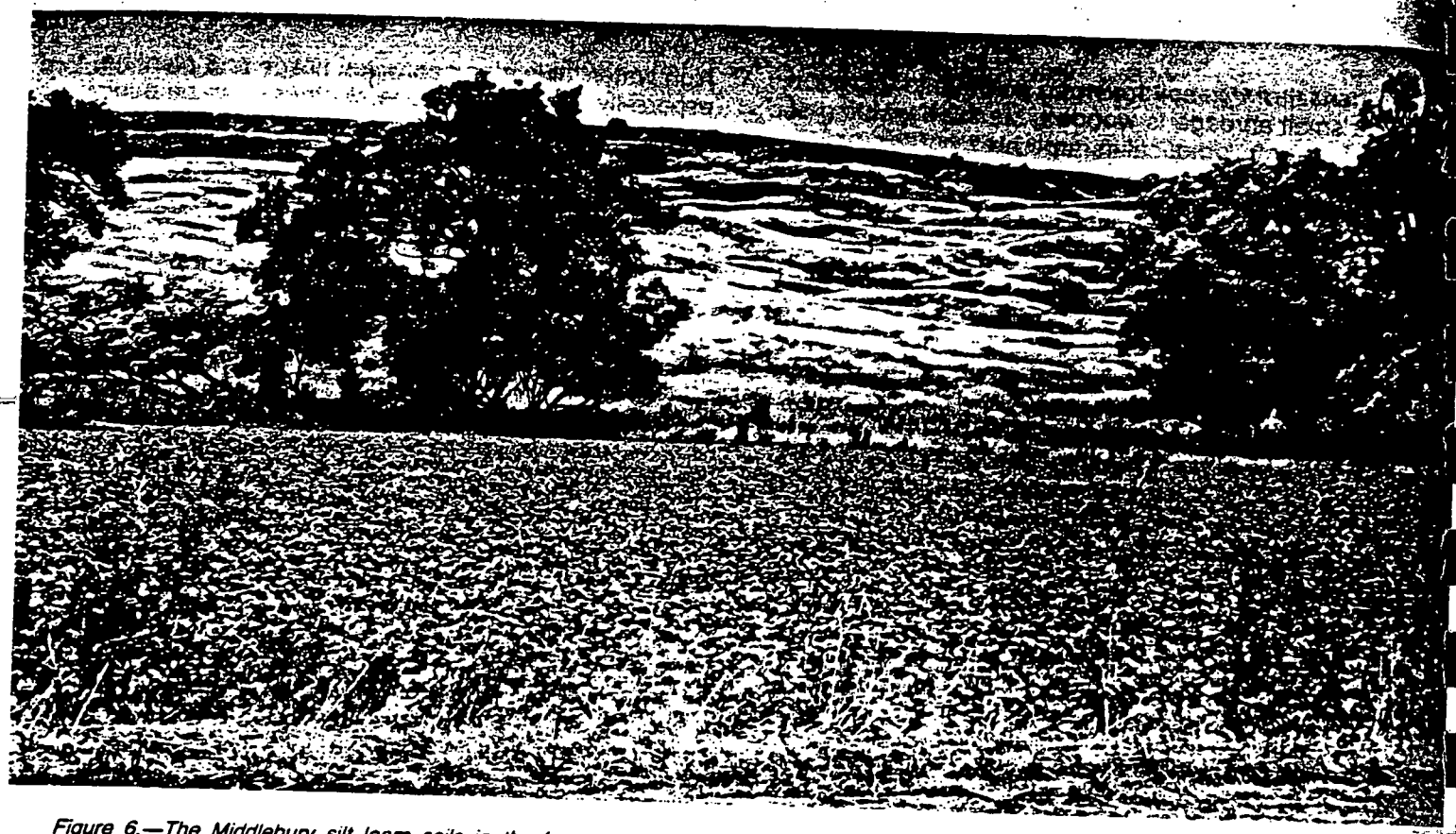

Figure 6.—The Middlebury silt loam soils in the foreground are suited to field crops. The hummocky surface of the Varysburg soils in the background is caused by downslope slippage. These soils are better suited to pasture or hay than to cultivated crops.

From February through April this Minoa soil has a seasonal high water table in the upper part of the subsoil. Permeability is moderate in the surface layer and subsoil and moderate or moderately rapid in the substratum. The available water capacity is moderate, and internal drainage and runoff are slow. Depth to bedrock is generally 5 feet or more. Unless limed, the surface layer and upper part of the subsoil are strongly acid to neutral.

Seasonal wetness, low soil strength, and instability of the soil when excavated limit many uses of this soil. Current land use is varied and includes residential development, farming, woodland, and idle areas. This soil is best suited to buildings without basements, to play and picnic areas, or, where artifically drained, to crops.

This Minoa soil is suited to cultivated crops if properly drained. Most areas respond well to subsurface drainage if adequate outlets are available. Erosion is not a problem on this nearly level soil, except where ditchbanks are unprotected. Keeping tillage to a minimum, using cover crops, and including sod crops in the cropping system improve tilth, help maintain the organic matter content, and improve crop production. This gravel- and stone-free soil is easy to till at the proper moisture level.

Without drainage, this soil is best suited to hay or pasture. Overgrazing and grazing when this soil is wet are major concerns of pasture management. Overgrazing can cause the loss of the seeding, and grazing when the soil is wet can lead to compaction of the soil and trampling of pasture plants. Proper stocking, rotation of grazing, yearly mowing, and restricted grazing during wet periods are the chief management needs.

The potential of this soil for wood crops is fair. Erosion is not a hazard, but seasonal wetness increases seedling mortality and restricts the use of equipment. Trees that can tolerate a seasonal wetness are best suited to this soil.

The seasonal high water table, low soil strength, and the tendency of cut banks to cave are serious limitations for most urban uses of this soil. Drains around foundations reduce seasonal wetness.

This Minoa soil is in capability subclass IIIw.

Ne—Newstead loam. This nearly level soil is moderately deep and somewhat poorly drained. It formed in glacial till deposits derived mainly from

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(Joins inset B, sheet 4)
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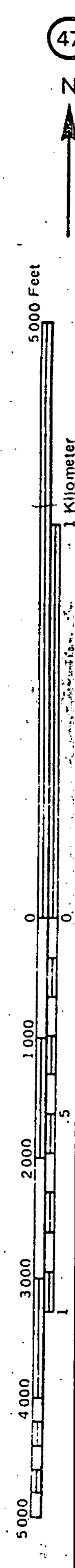
1 100 000 FEET
CONRAIL
267



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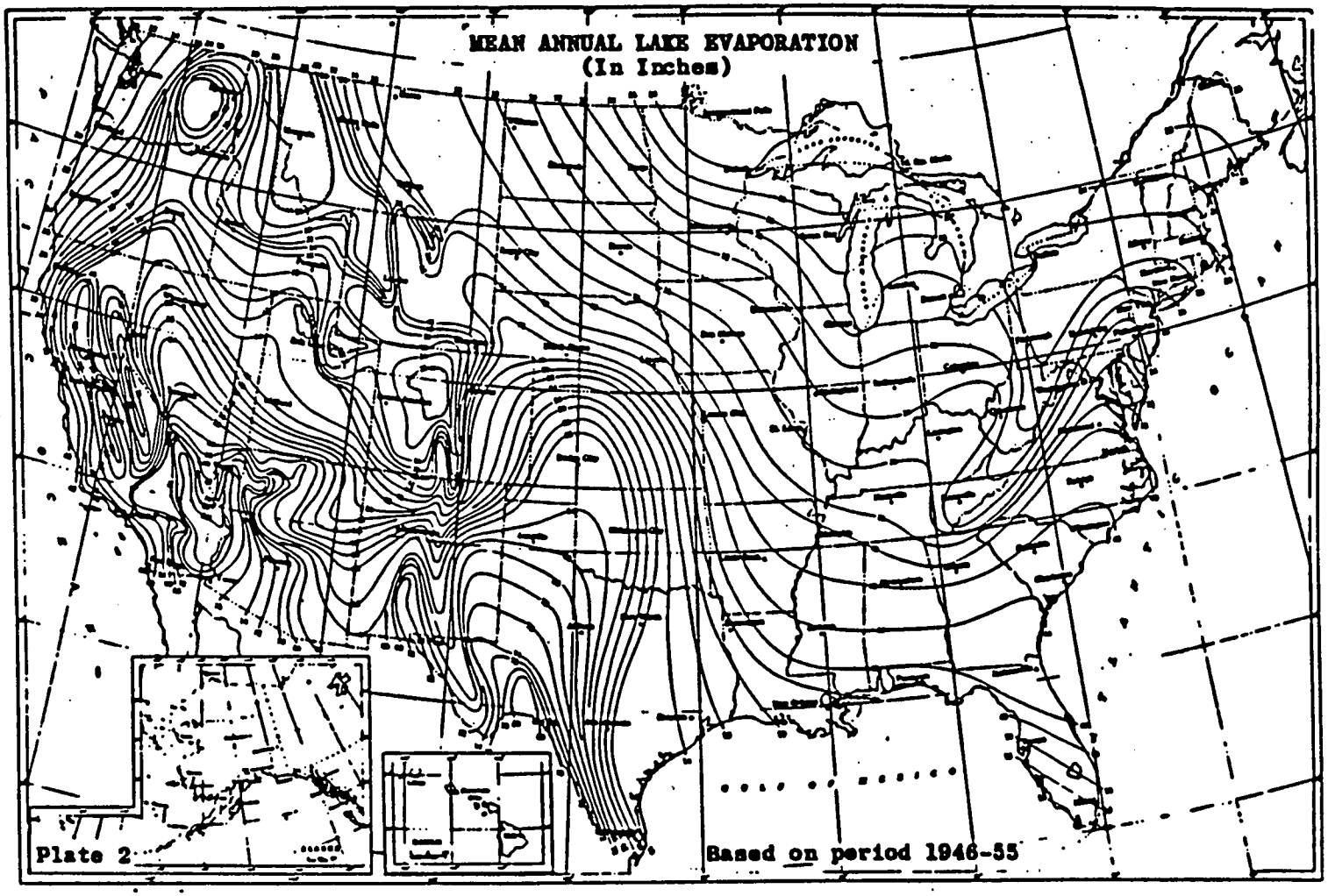

Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Ashville, N.C., 1979.

FIGURE 4
MEAN ANNUAL LAKE EVAPORATION
(IN INCHES)

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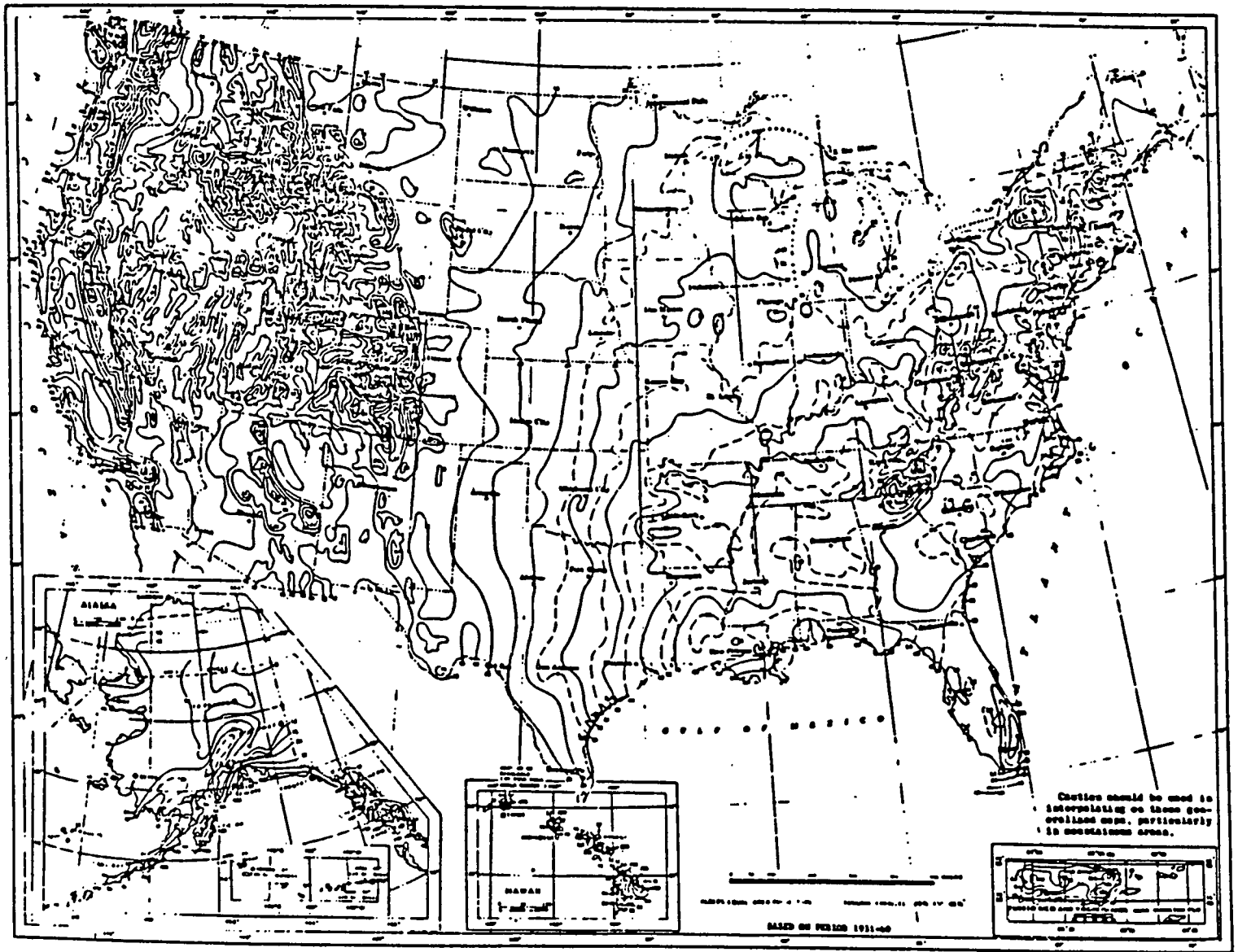
ecology and environment



Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Asheville, N.C., 1979.

FIGURE 5
NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)

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ecology and environment

REFERENCE NO. 4

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ecology and environment

Sylvan Lake vicinity. *SYLVAN LAKE ROCK SHELTER*, (7-12-74) PH0009385
Tivoli vicinity. *MONTGOMERY PLACE (CHATEAU DE MONTGOMERY)*, S of Tivoli, (5-2-75)

erie county

Buffalo. *ALBRIGHT-KNOX ART GALLERY*, 1285 Elmwood Ave., in Delaware Park, (5-27-71) PH0009458
Buffalo. *BUFFALO GAS LIGHT COMPANY WORKS*, 249 W. Genesee St., (9-1-76)
Buffalo. *BUFFALO STATE HOSPITAL*, 400 Forest Ave., (1-12-73) PH0009466 HABS.
Buffalo. *COUNTY AND CITY HALL*, 95 Franklin St., (5-24-76)
Buffalo. *DELAWARE AVENUE HISTORIC DISTRICT*, W. side of Delaware Ave. between North and Bryant Sts., (1-17-74) PH0009474
Buffalo. *GUARANTY BUILDING (PRUDENTIAL BUILDING)*, Church and Pearl Sts., (3-20-73) PH0009491 NHL; HABS.
Buffalo. *MACEDONIA BAPTIST CHURCH*, 511 Michigan Ave., (2-12-74) PH0009482
Buffalo. *MARTIN, D. D., HOUSE COMPLEX*, 123 Jewett Pkwy., (12-30-75) HABS.
Buffalo. *PIERCE ARROW FACTORY COMPLEX*, Elmwood and Great Arrow Aves., (10-1-74) PH0031721
Buffalo. *SHEA'S BUFFALO THEATER*, 646 Main St., (5-6-75)
Buffalo. *ST. PAUL'S EPISCOPAL CATHEDRAL*, 125 Pearl St., (3-1-73) PH0009504 HABS.
Buffalo. *THEODORE ROOSEVELT INAUGURAL NATIONAL HISTORIC SITE*, Delaware Ave., (11-2-66) PH0201111
Buffalo. *U.S. POST OFFICE*, 121 Ellicott St., (3-16-72) PH0009521 HABS.
Cheektowaga. *CHAPEL OF OUR LADY HELP OF CHRISTIANS*, 4125 Union Rd., (12-14-78)
East Aurora. *FILLMORE, MILLARD, HOUSE*, 24 Shearer Ave., (5-30-74) PH0290467 NHL.
East Aurora. *ROYCROFT CAMPUS*, Main and W. Grove Sts., (11-8-74) PH0030279
Irving. *THOMAS INDIAN SCHOOL*, NY 438 on Cattaraugus Reservation, (1-25-73) PH0009512

essex county

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County*
Crown Point. *FORT ST. FREDERIC*, Jct. of NY 8 and 9N, (10-15-66) PH0131989 NHL.
Crown Point vicinity. *FORT CROWN POINT*, Crown Point Reservation, SW of Lake Champlain Bridge and NY 8, (11-24-68) NHL.
Essex and vicinity. *ESSEX VILLAGE HISTORIC DISTRICT*, Town of Essex and surroundings on W bank of Lake Champlain, (5-28-75)
Essex vicinity. *CHURCH OF THE NAZARENE*, W of Essex on NY 22, (6-19-73) PH0009547 G.
Essex vicinity. *OCTAGONAL SCHOOLHOUSE*, On Rte. 22 in Bouquet, (1-17-73) PH0009571
Ironville. *IRONVILLE HISTORIC DISTRICT*, (12-27-74) PH0084808
Lake Placid (North Elba). *BROWN, JOHN, FARM*, John Brown Rd., (6-19-72) PH0009563
Port Kent. *WATSON, ELKANAH, HOUSE*, 3 mi. E of U.S. 9, (10-15-66) PH0131873 NHL.
Tahawus vicinity. *ADIRONDACK IRON AND STEEL COMPANY: UPPER WORKS*, N of Tahawus at Henderson Lake, (10-5-77)
Ticonderoga vicinity. *FORT TICONDEROGA*, 2.5 mi. S of Ticonderoga on NY 22, (10-15-66) PH0132357 NHL.

franklin county

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County* (1-2-74)
Malone. *HORTON GRISTMILL*, Mill St., (4-21-75)
Malone. *LINCOLN, ANSELM, HOUSE*, 49 Duane St., (4-21-75)
Malone. *MALONE FREIGHT DEPOT*, 99 Railroad St., (12-12-76)
Malone. *PADDOCK BUILDING*, 34 W. Main St., (11-7-76)

fulton county

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County*
Dolgeville. *DOLGE COMPANY FACTORY COMPLEX*, S. Main St., (9-17-74) (also in Herkimer County)
Gloversville. *GLOVERSVILLE FREE LIBRARY*, 58 E. Fulton St., (5-24-76)
Gloversville. *KINGSBORO HISTORIC DISTRICT*, Area surrounding Kingsboro Ave. Park to N side of cemetery and S to include both sides of Gregory St., (2-24-75)
Johnstown. *FULTON COUNTY COURTHOUSE (TRYON COUNTY COURTHOUSE)*, N. William St., (7-24-72) PH0009580 HABS.
Johnstown. *JOHNSON HALL*, Hall St., (10-15-66) PH0131806 NHL; HABS.

genesee county

Alexander. *ALEXANDER CLASSICAL SCHOOL*, Buffalo St., (10-25-73) PH0009598
Batavia. *BATAVIA CLUB (BANK OF GENESEE)*, Main and Bank Sts., (6-19-73) PH0009601
Batavia. *GENESEE COUNTY COURTHOUSE*, Main and Ellicott Sts., (6-18-73) PH0009610
Batavia. *HOLLAND LAND OFFICE*, W. Main St., (10-15-66) PH0046540 NHL.
Batavia. *RICHMOND MEMORIAL LIBRARY*, 19 Ross St., (7-24-74) PH0009636
Morganville. *MORGANVILLE POTTERY FACTORY SITE*, Morganville Rd. off NY 237, (2-15-74) PH0009628
Stafford. *STAFFORD VILLAGE FOUR CORNERS HISTORIC DISTRICT*, Jct. U.S. 5 and U.S. 237, (10-8-76)

greene county

Athens vicinity. *WEST ATHENS HILL SITE*, W of Athens, (3-20-73) PH0009661
Catskill. *COLE, THOMAS, HOUSE*, 218 Spring St., (10-15-66) PH0131814 NHL.
Catskill. *SUSQUEHANNAH TURNPIKE*, Beginning at Catskill, follows the Mohican Trail (NY 145) and CR 20 and 22 NW to the Schoharie County line, (1-2-74) PH0009652
Coxsackie vicinity. *BRONCK, PIETER, HOUSE*, 2 mi. W of Coxsackie on W side of U.S. 9W, (12-24-67) PH0132756 NHL.
Coxsackie vicinity. *FLINT MINE HILL ARCHEOLOGICAL DISTRICT*, Eastern Greene County, (11-29-78)
Earlton vicinity. *FORESTVILLE COMMONWEALTH*, NW of Earlton off NY 81, (11-20-74) PH0031534
Greenville vicinity. *PREVOST MANOR HOUSE (HUSH-HUSH FARM)*, W of Greenville off NY 81, (11-15-72) PH0009644

hamilton county

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County*
Blue Mountain. *BLUE MOUNTAIN HOUSE ANNEX*, NY 30, (12-7-77)
Blue Mountain Lake vicinity. *CHURCH OF THE TRANSFIGURATION*, N of Blue Mountain Lake on NY 30, (7-26-77)
Raquette Lake vicinity. *SAGAMORE*, Off NY 28 at W end of Saganore Lake, (1-11-76)

herkimer county

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County* (1-2-74)
DOLGE COMPANY FACTORY COMPLEX, *Reference—see Fulton County* (1-2-74) PH0084794
Cold Brook. *COLD BROOK FEED MILL*, NY 8, (10-9-74) PH0031691
Danube. *HERKIMER HOUSE*, Near NY 5 S., (2-12-71) PH0009725
East Herkimer vicinity. *FORT HERKIMER CHURCH (REFORMED PROTESTANT DUTCH CHURCH OF GERMAN FLATTS)*, NY 5S, (7-24-72) PH0009679 HABS; G.
Herkimer. *HERKIMER COUNTY COURTHOUSE*, 320 N. Main St., (1-14-72) PH0009733 G.
Herkimer. *HERKIMER COUNTY HISTORICAL SOCIETY (DR. A. WALTER SUITER HOUSE)*, 400 N. Main St., (4-13-72) PH0009695
Herkimer. *HERKIMER COUNTY JAIL*, 327 N. Main St., (1-14-72) PH0009709 HABS; G.
Herkimer. *REFORMED CHURCH, THE*, 405 N. Main St., (3-16-72) PH0009741 G.
Ilion. *REMINGTON STABLES*, 1 Remington Ave., (10-29-76)
Indian Castle vicinity. *INDIAN CASTLE CHURCH*, NY 5S, (2-18-71)
Little Falls. *HERKIMER COUNTY TRUST COMPANY BUILDING*, Corner of Ann and Albany Sts., (3-5-70) PH0009717
Salisbury Center. *SALISBURY CENTER COVERED BRIDGE*, Fairview Rd. over Spruce Creek, (6-19-72) PH0009750

jefferson county

Adams vicinity. *TALCOTT FALLS SITE*, U.S. 11 at jct. with Old Rome State Rd., (6-5-74) PH0009792
Alexandria Bay. *CORNWALL BROTHERS' STORE*, 2 Howell Pl., (5-2-75)
Alexandria Bay vicinity. *BOLDT, GEORGE C., YACHT HOUSE*, NW of Alexandria Bay on Wellesley Island, (4-26-78)
Black River vicinity. *LERAY MANSION*, NE of Black River on Camp Drum Military Reservation, (7-11-74) PH0044032
Cape Vincent. *LERAY, VINCENT, HOUSE (STONE HOUSE)*, Broadway (NY 12E), (11-15-73) PH0009784
Cape Vincent vicinity. *FORT HALDIMAND SITE*, NE of Cape Vincent, (12-15-78)
Mannsville vicinity. *PIERREPONT MANOR COMPLEX*, N of Mannsville on Ellisburg St., (9-15-77)
Sackets Harbor. *CAMP, ELISHA, HOUSE (BRICK CAMP MANOR)*, 310 General Smith Dr., (4-23-73) PH0009768
Sackets Harbor. *MADISON BARRACKS*, Military Rd., (11-21-74) PH0132977
Sackets Harbor. *SACKETS HARBOR BATTLEFIELD*, Coastline and area from Sackets Harbor SW to and including Horse Island, (12-31-74) PH0132985
Sackets Harbor. *UNION HOTEL*, Main and Ray Sts., (6-19-72) PH0009806 G.

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nig, portico moved, 1890's addition; 20th C interior alterations; restored Greek Revival Built for officers' quarters as part of Pomsett Barracks; site of Theodore Roosevelt's inauguration Sept. 14, 1901 after William McKinley's assassination. Museum. *Federal/NPS.*

Buffalo. **U.S. POST OFFICE,** 121 Ellicott St., 1897–1901, James Knox Taylor, architect. Rock-faced granited base, granite ashlar; 4 1/2 stories over high basement, modified rectangle, gabled and pyramidal roof sections, numerous gabled dormers, modillion cornice; front center tall tower with corner turrets, gargoyles, and spire with crockets and finial; front 3 entrances recessed under 3-bay entrance porch with elaborate Gothic detailing, each side with 3-bay entry and 1–3 entrances; rear cast iron porte-cochere, string courses, windows grouped under pointed arches; molded and carved detail including foliate capitals and buffalo heads; 4-story-high central courtyard above 1st floor with steel and glass roof surrounded by galleries with rectangular, segmental, and pointed arched openings; 1936 remodeling included roofing of 1st floor of courtyard and skylight. Later Gothic Revival. Excellent example of late-19th C. dual-nature architecture combining revivalist style with technological innovations; designed by James Knox Taylor, Supervising Architect of the U.S. Treasury. *Federal/GSA:* HABS.

East Aurora. **FILLMORE, MILLARD, HOUSE,** 24 Shearer Ave., 1826. Frame, clapboarding; 1 1/2 stories, modified L shape, gabled roof sections, exterior end chimneys, 1-story full-width front tetrastyle Doric porch, front center entrance; moved, 1915 and 1930; altered, c. 1930. Greek Revival elements. Built by Millard Fillmore, lawyer, state and U.S. representative, and U.S. Vice President who became President upon the death of Zachary Taylor in 1850. *Private; not accessible to the public:* NHL.

East Aurora. **ROYCROFT CAMPUS,** Main and W. Grove Sts., Late-19th C.–1938. Complex containing approximately 9 structures, the majority of which feature crenelated towers, half-timbered gables, and stone or shingled exteriors. Built as part of Arts and Crafts artistic community established in late-19th C. by writer Elbert Hubbard after visiting a similar English community organized by Arts and Crafts movement leader William Morris; utilized Medieval organization and building concepts as inspired by the writings of John Ruskin; in operation until 1938. *Multiple public/private.*

Irving. **THOMAS INDIAN SCHOOL,** NY 438 on Cattaraugus Reservation, 1900, Barney and Chapman, architects. Educational complex [redacted] Children, and [redacted] accredited educational institution; in operation until 1958 when closed as result of centralization of the public school system. *Tribal.*

ESSEX COUNTY

ADIRONDACK FOREST PRESERVE, *Reference—see Clinton County*

Crown Point. **FORT ST. FREDERIC,** Jct of NY 8 and 9N, 1731. Limestone ruins of fort established by French to guard Lake Champlain route into Canada. Abandoned in 1759 after Lord Jeffrey Amherst captured nearby Fort Carillon, which the British renamed Fort Ticonderoga (see also Fort Ticonderoga, NY), during the French and Indian War. *State:* NHL.

Crown Point vicinity. **FORT CROWN POINT,** Crown Point Reservation, SW of Lake Champlain Bridge and NY 8, 1760. Limestone walls of 5-sided fort containing 6.5-acre parade ground and 2 of 3 original barracks, and surrounded by dry moat. Constructed by British as Fort Crown Point or Amherst after Lord Jeffrey Amherst who drove French from area during the French and Indian War. Damaged in 1773 when powder magazine exploded; reconstruction interrupted by Revolution was never completed. Occupied alternately by Americans and British during Revolution. *State:* NHL.

Essex vicinity. **CHURCH OF THE NAZARENE,** W of Essex on NY 22, 1855. Frame, board-and-batten siding; gabled roof with double pitch and end returns, front shoulder arched entrance, lancet windows, trefoil in gable; interior wooden arches spring from unengaged wooden posts to form primary roof support. Gothic Revival. Simple design apparently based upon small mission chapel prototype in Richard Upjohn's *Rural Architecture*, published 1852. *Private.*

Essex vicinity. **OCTAGONAL SCHOOLHOUSE,** On Rte. 22 in Bouquet, 1826, Benjamin Gilbert, builder. Rubble sandstone, 1 story, modified octagon, polygonal roof, octagonal open belfry with polygonal roof, front entrance with shed porch, rear entrance leads to frame vestibule addition; porch added Octagon Mode. Probably state's oldest schoolhouse; served as school until 1952. *Municipal.*

Ironville. **IRONVILLE HISTORIC DISTRICT,** 19th C., Rural residential area includes focal Penfield Homestead (1828), other houses, church, boardinghouse, Grange Hall, inn, schoolhouse, and ruinous remains of ironworks. Est. 1807; developed major iron industry; pioneered in industrial use of electricity. Museum. *Multiple private.*

set in almost round recesses, decorative work and bargeboards, stone quoins and 1st-story window with stained glass om. Original L-shaped structure enlarged edecorated with Queen Anne elements. 9th C. *Private.*

ıkeepsie. **LOCUST GROVE (SAMUEL F. ORSE HOUSE)**, 370 South St., 1830. :, clapboarding; 2 stories, modified T . gabled roof, interior chimneys, eted cornice, projecting octagonal wings, y stuccoed end tower with round arched ws, porch with latticework fascia and carriage house extension with large arched openings; substantially expanded : Morse's ownership. Italianate. Home 1847 of Samuel F. B. Morse, inventor of legraph and a noted artist who had stu- and traveled in England and Europe. *e; not accessible to the public:* NHL.

keepsie. **MAIN BUILDING, VASSAR EGE.** Vassar College campus, Mid-19th mes Renwick, architect. Brick, 4 stories -story pavilions, U-shaped, mansard roof ıated by towers and central convex man- ection. One of the earliest Second Empire ıgs in the U.S.; reputedly designed after C. Tuileries Palace. School founded by ew Vassar, Poughkeepsie philanthropist ioneered higher education for women. :.

iHKEEPSIE. **MILL STREET-NORTH ER STREET HISTORIC DISTRICT,** 20th C.. Residential area containing ily. 2–3-story brick houses from post- War period in styles ranging from Greek il to those of the Victorian period; nota- : the numerous Second Empire structures ıe Queen Anne Italian Center (see also Center, NY). Eastern section became civic and cultural center under direction Vassar family. *Multiple public/private.*

keepsie. **POUGHKEEPSIE CITY HALL,** ain St., 1831. Brick, 2 stories, rectangu- ibled roof, denticulated cornice, front balustraded frame belfry with hipped ear cupola with pyramidal roof, front entrance with transom and side lights; tone trim including wide belt course n stories, lintels, and sills; 2 brick addi- altered. Greek Revival. Built as market lage hall; presumably with open 1st-floor area; served as post office, 1865–1886. *pal.*

eepsie. **SECOND BAPTIST CHURCH,** sar St., Mid-19th C.. Brick base, frame, ding; 1 1/2 stories over high basement, ular temple-form, gabled roof, interior imneys, entablature surrounding build- nt tetrastyle Doric pedimented portico lustrade, oculus in tympanum, and 2 en- with shouldered architraves; side s; side rectangular windows, each with and shouldered architrave; altered. Revival. Property originally purchased Matthew Vassar's family; building has been used for Protestant and Jewish worship. *Private.*

Poughkeepsie. **UNION STREET HISTORIC DISTRICT.** About 8 blocks in downtown Poughkeepsie centered around Union St., 19th C.. Working class urban neighborhood containing 173 historical commercial and residential structures; features numerous 2 1/2-story brick buildings in styles from Federal to those of the Victorian period, long narrow lots, and backyards. City's oldest section; settled largely by German, Irish, Italian, and Slavic immigrants, and by Blacks. *Multiple public/private.*

Poughkeepsie. **VASSAR HOME FOR AGED MEN,** 1 Vassar St., 1880. Brick, 3 stories over high basement, rectangular, low hipped roof with deck, interior end chimney, gabled section rises above cornice line on each side, bracketed cornice with narrow arched corbel tables below, stairway leads to front entrance with transom; 1-story balustraded porch with slender columns, similar side and rear porches with entrances; granite banding connects granite architraves and sills. Italianate. Built on the site of Matthew Vassar's town residence as home for men 65 and over, as established by Matthew Vassar, Jr., and John Guy Vassar. *Public.*

Poughkeepsie. **VASSAR INSTITUTE,** 12 Vassar St., 1882. J. A. Wood, architect. Brick, 2 1/2 stories, rectangular, convex mansard and hipped roof sections, interior chimney, round arched dormers with raised ridge, bracketed cornice with decorative frieze, front center 3-story tower, entrance porch with paired columns, recessed brick paneling, segmental arched openings, granite trim, rear lower wing with round arched windows houses auditorium; tower dome removed. High Victorian Italianate with Second Empire elements. Built for Matthew Vassar Jr. and John Guy Vassar; contained natural history museum and library. *Private.*

Poughkeepsie. **VASSAR, MATTHEW, ESTATE (SPRINGSIDE).** Academy and Livingston Sts., 1850–1852. Andrew Jackson Downing, architect. Rural estate containing a 2-story cottage with board-and-batten siding, gabled roof, bay windows, and decorative bargeboards, shutter trim, and bracketing; a gatehouse in similar style; and the remains of an L-shaped barn complex. Picturesque Gothic Revival. Home of Matthew Vassar, Poughkeepsie brewer and Vassar College founder (see also Main Building, Vassar College, NY). Grounds also designed by early landscape architect Andrew Jackson Downing. *Private; not accessible to the public:* NHL; HABS.

Red Hook. **MAIZEFIELD,** 75 W. Market St., 18th–19th C.. Brick, 3 stories, rectangular main block with later additions, flat roof, 4 interior end chimneys, 1-story front entrance portico with Palladian window above, heavy cornice with block modillions. Federal. Only extant dependency–2-story, hipped roof board-and-batten cottage designed by Alexander Jackson Davis. Residence of Gen. David Van Ness, prominent military and political leader in the late-18th and early-19th C. *Private.*

Rhinebeck. **DELAMATER, HENRY, HOUSE,** 44 Montgomery St., 1844. Alexander Jackson Davis, architect. Frame, board-and-batten siding; modified rectangle; hipped roof with cross gable, each end with finial; interior chimneys, carved scalloped bargeboards, 3 front Tudor arched openings, 1-story 3-bay-wide porch with carved flat posts and brackets forming Tudor arches, balustraded deck; center 2nd story and attic, each with rectangular window under blind pointed arch with tracery; each side with bay window; interior designed by architect to harmonize with exterior design; rear veranda enclosed and extended; board-and-batten carriage house. Excellent example of Gothic Revival cottage design advocated by Alexander Jackson Davis and Andrew Jackson Downing. *Private.*

Sylvan Lake vicinity. **SYLVAN LAKE ROCK SHELTER,** 5000 B.C.–700 A.D. Undisturbed stratified rock shelter; served as winter camp for Archaic hunters beginning c. 5000 B.C. Excavations between 1964 and 1966 revealed numerous remains of the Sylvan Lake Culture (c. 2500 B.C.), elements of the Susquehanna Tradition (c. 1500–1000 B.C.), and Middle and Late Woodland deposits. *Private.*

ERIE COUNTY

Buffalo. **ALBRIGHT-KNOX ART GALLERY,** 1285 Elmwood Ave., in Delaware Park, 1900–1905. Edward B. Green, architect. Partially marble faced, 2 stories, modified H shape, gabled roof sections–E: pedimented Ionic entrance portico flanked by colonnaded wings ending in pavilions, each with caryatids by Augustus Saint Gaudens; W semielliptical Ionic porch flanked by colonnaded sections; interior sculpture courtyard. Neo-Classical Revival. Built to permanently house the collections of the Buffalo Fine Arts Academy. *Private.*

Buffalo. **BUFFALO STATE HOSPITAL,** 400 Forest Ave., 1871–1890. Henry Hobson Richardson, architect. Random rough ashlar sandstone, brick; 3 1/2 stories above high basement, main block with 5 W wards and 2 E wards, gabled and hipped roof sections, gabled and flared hipped dormers, front entrance recessed under 3-bay arcade flanked by projecting pavilion; 2 main-block towers with steeply hipped roofs, shed dormers, and corner turrets; machicolations, rectangular and segmental arched windows, wings with projecting cross-gable sections; 3 wards removed, 1960's; 4 service buildings; site plan by Frederick Law Olmsted. Richardsonian Romanesque elements. Early development example of Henry Hobson Richardson's work. *State:* HABS.

Buffalo. **DELAWARE AVENUE HISTORIC DISTRICT,** W side of Delaware Ave. between North and Bryant Sts., 19th–20th C.. Remaining section of elite residential area of predominantly turn-of-the-century grand dwellings. Era's Neo-Classical and Georgian Revival styles

Hamburg. *Bethany Chapel (Hamburg Presbyterian Church)* 103 Hamburg Tpke. (2-29-80)
Wallpack Center vicinity. *Peters Valley Historic District.* Sandyston-Haney's Mill, Walpack, and Kuhn Rds. (2-29-80)

Union County

Fanwood. *Central Railroad of New Jersey (Fanwood Railroad Station Complex)* 238 North Ave. (7-17-80)
New Providence vicinity. *Feltville Historic District.* S of New Providence (6-6-80)

Warren County

Belvidere. *Belvidere Historic District.* Off U.S. 46 (10-3-80)
Vienna vicinity. *Mount Bethel Methodist Church.* S of Vienna on Mount Bethel Rd. (2-29-80)

NEW MEXICO

ANASAZI SITES WITHIN THE CHACOAN INTERACTION SPHERE THEMATIC RESOURCES. Reference—see individual listings under McKinley and San Juan Counties.

Bernalillo County

Albuquerque. *Hope Building.* 220 Gold St., SW. (8-29-80)
Albuquerque. *Pacific Desk Building.* 213-215 Gold Ave., SW. (9-30-80)

Grant County

San Juan vicinity. *Wheaton-Smith Site* (7-23-80)
San Lorenzo vicinity. *Janss Site* (7-23-80)

Luna County

Deming. *Mahoney Building.* Gold and Spruce Sts. (9-30-80)

McKinley County

Crownpoint vicinity. *Casa De Estrella Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Crownpoint vicinity. *Dalton Pass Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Crownpoint vicinity. *Greenlee Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Crownpoint vicinity. *Haystack Archeological District (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Crownpoint vicinity. *Upper Kin Klizhin Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Fort Wingate vicinity. *Fort Wingate Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)

Otero County

LA LUZ TOWNSITE MULTIPLE RESOURCE AREA. This area includes: La Luz. *La Luz Historic District.* Off NM 83; *Garcia, Juan, House.* Tularosa St.; *Queen Anne House.* Kearny St.; *Sutheriana, D. H., House.* Main St. (10-23-80)

Rio Arriba County

Espanola. *Bond, Frank, House.* Bond St. (3-6-80)

Sandoval County

Bernalillo. *Abenicio Salazar Historic District.* U.S. 85 (6-6-80)
Corrales. *San Ysidro Church.* Church Rd. (7-30-80)
Guadalupe vicinity. *Guadalupe Ruin.* SE of Guadalupe (3-24-80)

San Juan County

Bloomfield vicinity. *Halfway House Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)
Bloomfield vicinity. *Twin Angels Archeological Site (Anasazi Sites Within the Chacoan Interaction Sphere Thematic Resources)* (10-10-80)

San Miguel County

Las Vegas. *Distrito de las Escuelas.* S. Pacific and S. Gonzales Sts. (3-18-80)
Las Vegas. *Ilfeld, Adele, Auditorium.* New Mexico Highlands University campus (1-8-80)

Santa Fe County

Santa Fe vicinity. *Acequia System of El Rancho de las Golondrinas.* 12 mi. SE of Santa Fe (2-1-80)

Socorro County

Magdalena. *MacDonald Merchandise Building.* U.S. 60 (9-25-80)

Taos County

Taos. *Fechin, Nicholai, House.* NM 3 (12-31-79)

Valencia County

Encinal. *Village of Encinal Day School* (8-8-80)

NEW YORK

INTERBOROUGH RAPID TRANSIT SUBWAY CONTROL HOUSES THEMATIC RESOURCES. Reference—see individual listings under Bronx, King, and New York counties.
Women's Rights Historic Sites Thematic Resources. Reference—see individual listings under Seneca County.

Albany County

Albany. *Abrams Building.* 55-57 S. Pearl St. (2-14-80)
Albany. *Center Square/Hudson-Park Historic District.* Roughly bounded by Park Ave., State, Lark and S. Swan Sts. (3-18-80)
Albany. *Downtown Albany Historic District.* Broadway, State, Pine, Lodge and Columbia Sts. (1-31-80)
Albany. *St. Peter's Episcopal Church.* 107 State St. (1-16-80) NHL
Alcove. *Alcove Historic District).* SR 11 and Alcove Rd. (7-24-80)
Guilderland. *Albany Glassworks Site* (7-22-80)

Allegheny County

Alfred. *Firemen's Hall.* 7 W. University St. (3-18-80)

Bronx County

Bronx. *Bronx Central Annex-U.S. Post Office.* 558 Grand Concourse (5-6-80)
Bronx. *Fonthill Castle and the Administration Building of the College of Mount St. Vincent.* W. 261st St. and Riverdale Ave. (7-11-80)
Bronx. *Mott Haven Historic District.* An irregular pattern along Alexander Ave. and E. 140th St. (3-25-80)
Bronx. *New York, Westchester and Boston Railroad Administration Building.* 481 Morris Park Ave. (4-23-80)
Bronx. *Poe Cottage.* 2640 Grand Concourse (8-19-80)
Bronx. *St. Ann's Church Complex.* 295 St. Ann's Ave. (4-16-80)
New York. *Mott Avenue Control House (Interborough Rapid Transit Subway Control Houses Thematic Resources).* 149th St. and Grand Concourse (5-6-80)

Broome County

Binghamton. *Roberson Mansion.* 30 Front St. (3-25-80)
Binghamton. *Rose, Robert H., House.* 3 Riverside Dr. (8-26-80)
Windsor. *Windsor Village Historic District.* College Ave., Academy, Chapel, Church, Dewey, Elm and Main Sts. (7-30-80)

Cayuga County

Auburn. *Case Memorial-Seymour Library.* 176 Genesee St. (5-6-80)

Chautauqua County

Dunkirk. *Point Gratiot Lighthouse Complex.* Sycamore Rd. (12-18-79)

Chemung County

Elmira. *Elmira Civic Historic District.* E. Church, Lake, E. Market, Baldwin, Carroll, and State Sts. (7-30-80)
Horseheads. *Horseheads 1855 Extension Historic District.* Grand Central Ave., Fletcher, Sayre, W. Mill and Center Sts. (7-30-80)

Columbia County

Claverack. *Double-Span Whipple Bowstring Truss Bridge.* Van Wyck Lane (4-17-80)
Hudson vicinity. *Wiswall, Oliver, House.* W of Hudson (9-4-80)

Delaware County

Franklin. *New Stone Hall.* Center St. (5-6-80)

Dutchess County

Fishkill vicinity. *Stony Kill Farm.* W of Fishkill on NY 9D (3-20-80)
Hyde Park. *Roosevelt, Eleanor, National Historic Site.* Violet Ave. (3-20-80)
Pawling. *Kane, John, House.* 126 E. Main St. (10-20-80)
Red Hook vicinity. *Heermance Farmhouse.* N of Red Hook on W. Kerley Corner Rd. (5-6-80)

Erie County

Buffalo. *Allentown Historic District.* Off NY 384 (4-21-80)
Buffalo. *Buffalo and Erie County Historical Society.* 25 Nottingham Ct. (4-23-80)
Buffalo. *Niagara Frontier Transit Buildings.* 855 Main St. (5-14-80)
Buffalo. *West Village Historic District.* Roughly bounded by S. Elmwood Ave.,

Chippewa, Georgia, Prospect, Carolina, and Tracy Sts. (5–6–80)
Orchard Park, *Johnson-Ipills Complex*, S–1287 S. Buffalo St. (5–6–80)

Fulton County

Ephratah vicinity, *Garoga Site* (7–22–80)
Ephratah vicinity, *Klock Site* (7–22–80)
Ephratah vicinity, *Pagerie, Smith, Site* (4–22–80)

Genessee County

North Bergen, *Gifford-Walker Farm*, 7083 N. Bergen Rd. (1–10–80) (also in Orleans County)

Greene County

Coxsackie, *Reed Street Historic District*, Reed, Ely, Mansion, and River Sts. (5–6–80)

Jefferson County

Alexandria Bay vicinity, *Ingleside*, W of Alexandria Bay on Cherry Island (4–16–80)
Watertown, *Flower, Roswell P., Memorial Library*, 229 Washington St. (1–10–80)
Watertown, *Paddock Mansion*, 228 Washington St. (12–11–79)
Watertown, *Watertown Masonic Temple*, 240 Washington St. (1–23–80)

Kings County

Brooklyn, *Brooklyn Borough Hall*, 209 Joralemon St. (1–10–80)
Brooklyn, *Hanson Place Seventh Day Adventist Church*, 88 Hanson Pl. (4–23–80)
Brooklyn, *Kings County Savings Bank*, 135 Broadway (4–16–80)
Brooklyn, *Monsignor McColrick Park and Shelter Pavilion*, Bounded by Nassau and Driggs Aves., Russell and Monitor Sts. (5–6–80)
Brooklyn, *New Utrecht Reformed Church and Buildings*, 18th Ave. and 83rd St. (4–9–80)
Brooklyn, *Prospect Park*, Bounded by Parkside, Ocean and Flatbush Aves., Prospect Park W. and Prospect SW. (9–17–80)
Brooklyn, *Old Gravesend Cemetery*, Gravesend Neck Rd. and MacDonald Ave. (9–17–80)
Brooklyn, *Russian Orthodox Cathedral of the Transfiguration of Our Lord*, 228 N. 12th St. (4–16–80)
Brooklyn, *St. Bartholomew's Protestant Episcopal Church and Rectory*, 1227 Pacific St. (4–23–80)
Brooklyn, *State Street Houses*, 291–299, 290–324 State St. (1–17–80)
Brooklyn, *Twentythird Regiment Armory*, 1322 Bedford Ave. (5–6–80)
Brooklyn, *Williamsburgh Savings Bank*, 175 Broadway (4–9–80)
New York, *Atlantic Avenue Control House (Interborough Rapid Transit Subway Control Houses Thematic Resources)* Flatbush and Atlantic Aves. (5–6–80)
New York, *Bennett, Floyd, Field Historic District*, Flatbush Ave. (4–11–80)
New York, *Public School 39*, 417 6th Ave. (4–17–80)

Livingston County

Avon vicinity, *Barber-Mulligan Farm*, NE of Avon at 5403 Barber Rd. (5–19–80) (also in Monroe County)
Lima, *Hillcrest*, 7242 W. Main St. (5–6–80)
Oakland vicinity, *Edgerley*, S of Oakland at 9303 Creek Rd. (7–16–80)

Monroe County

BARBER-MULLIGAN FARM, Reference—see Livingston County.
Fairport, *DeLand, Henry, House*, 99 S. Main St. (4–17–80)
Fairport, *Wilbur House*, 187 S. Main St. (5–6–80)
Perinton, *Richardson's Tavern*, 1474 Marsh Rd. (5–6–80)

Montgomery County

Amsterdam, *Greene Mansion*, 92 Market St. (12–31–79)
Canajoharie vicinity, *Rice's Woods* (7–18–80)
Nelliston, *Nelliston Multiple Resource Area* This area includes: *Nelliston Historic District*, Prospect, River, Railroad and Berthoud St.; *Ehle, Peter, House*, E. Main St.; *Lasher-Davis House*, U.S. 5; *Nellis, Jacob, Farmhouse*, Nellis St.; *Walrath-Van Horne House*, W. Main St.; *Waterman-Gramps House*, School St. (9–27–80)

Nassau County

Manhasset, *Onderdonk, Horatio Gates, House*, 1471 Northern Blvd. (4–16–80)

New York County

New York *Alwyn Court Apartments* 180 W. 58th St. (12–28–79)
New York, *American Fine Arts Society*, 215 W. 57th St. (5–6–80)
New York, *American Radiator Building*, 40–52 W. 40th St. (5–7–80)
New York, *Ansonia Hotel*, 2101—2119 Broadway (1–10–80)
New York, *Association of the Bar of the City of New York*, 42 W. 44th St. (1–3–80)
New York, *Audubon Terrace Historic District*, Bounded by Broadway, Riverside Dr., W. 155th and W. 158th Sts. (5–30–80)
New York, *Bailey House*, 10 St. Nicholas Pl. (4–23–80)
New York, *Battery Park Control House (Interborough Rapid Transit Subway Control Houses Thematic Resources)* State St. and Battery Pl. (5–6–80)
New York, *Belnord Apartments*, 225 W. 86th St. (4–23–80)
New York, *Bowling Green Fence and Park*, Broadway and Beaver Sts. (4–9–80)
New York *Building at 45 East 66th Street* (5–6–80)
New York, *Building at 85 Leonard Street* (4–23–80)
New York, *Building at 378—380 Lafayette Street* (12–28–79)
New York, *Bouwerie Lane Theater*, 330 Bowery St. (4–23–80)
New York, *Bowery Savings Bank*, 130 Bowery St. (4–23–80)
New York, *Chanin Building*, 122 E. 42nd St. (4–23–80)
New York, *Chapel of the Intercession Complex and Trinity Cemetery*, 550 W. 155th St. (7–24–80)
New York, *Church of Notre Dame and Rectory*, 405 W. 114th St. and 40 Morningside Dr. (5–6–80)
New York, *Church of St. Ignatius Loyola Complex*, Park Ave., 83rd and 84th Sts. (7–24–80)
New York, *Church of the Holy Communion and Buildings*, 656–682 6th Ave. (4–17–80)
New York, *Church of the Immaculate Conception and Clergy House*, 408–414 E. 14th St. (3–28–80)
New York, *Church of the Transfiguration*, 25 Mott St. (4–16–80)
New York, *Claremont Stables (Claremont Riding Academy)* 173–177 W. 89th St. (4–16–80)
New York, *Control House on 72nd Street (Interborough Rapid Transit Subway Control Houses Thematic Resources)* W. 72nd St. and Broadway (5–6–80)
New York, *East 78th Street Houses*, 157, 159, 161, and 163–165 E. 78th St. (3–25–80)
New York, *East 80th Street Houses*, 116–130 E. 80th St. (3–28–80)
New York, *Eldridge Street Synagogue*, 12–16 Eldridge St. (3–28–80)
New York, *Federal Reserve Bank of New York*, 33 Liberty St. (5–6–80)
New York, *First Houses*, E. 3rd St. and Ave. A (12–18–79)
New York, *First Shearith Israel Graveyard*, 55–57 St. James Pl. (4–17–80)
New York, *Former Police Headquarters Building*, 240 Centre St. (3–28–80)
New York, *Gramercy Park Historic District*, Roughly bounded by 3rd and Park Aves. S., E. 18th and 22nd Sts. (1–23–80)
New York, *Harlem Courthouse*, 170 E. 121st St. (4–16–80)
New York, *Harlem River Houses*, 151st to 153rd St., Macombs Pl. and Harlem River Dr. (12–18–79)
New York, *Harvard Club of New York City*, 27 W. 44th St. (3–28–80)
New York, *Holy Trinity Church, St. Christopher House and Parsonage*, 312–318 and 332 E. 88th St. (5–30–80)
New York, *House at 37 East 4th Street* (1–3–80)
New York, *Knickerbocker Hotel*, 142 W. 42nd St. (4–11–80)
New York, *Lescaze House*, 211 E. 48th St. (5–19–80)
New York, *Marble Collegiate Reformed Church*, 275 5th Ave. (4–9–80)
New York, *Mariner's Temple*, 12 Oliver St. (4–16–80)
New York, *McGraw-Hill Building*, 328 W. 42nd St. (3–28–80)
New York, *Municipal Asphalt Plant*, Between 90th and 91st Sts. (5–23–80)
New York, *New Amsterdam Theater*, 214 W. 42nd St. (1–10–80)
New York, *New York City Marble Cemetery*, 52–74 E. 2nd St. (9–17–80)
New York, *New York Public Library, 115th Street Branch*, 203 W. 115th St. (5–6–80)
New York, *New York Public Library and Bryant Park*, Avenue of the Americas, 5th Ave., 40th and 42nd Sts. (10–15–66) NHL
New York, *No. 8 Thomas Street Building*, 8 Thomas St. (4–30–80)
New York, *Old Colony Club*, 120 Madison Ave. (4–23–80)
New York, *Old Grolier Club*, 29 E. 32nd St. (4–23–80)
New York, *Park Avenue Houses*, 680, 684, 688 and 690 Park Ave. (1–3–80)
New York, *Public Baths*, Asser Levy Pl. and E. 23rd St. (4–23–80)
New York, *Public School 55 (Public School 135)* 931 1st Ave. (10–27–80)
New York, *Rice, Isaac L., Mansion (Villa Julia)* 346 W. 89th St. (6–25–80)
New York, *Riverside-West 105th Street Historic District*, Roughly bounded by W. End Ave., Riverside Dr., W. 104th and W. 108th Sts. (8–19–80)

Otero County

Sacramento vicinity, *Circle Cross Ranch Headquarters*, SW of Sacramento (11-17-80)

Valencia County

Belen, *Belen Hotel*, 200 Becker Ave. (11-12-80)

NEW YORK

STONE HOUSES OF BROWNVILLE THEMATIC RESOURCES. Reference—individual listings under Jefferson County.

Albany County

Albany, *Knickerbocker and Arnink Garages*, 72—74 (11-28-80)

Cayuga County

Aurora, *Aurora Village-Wells College Historic District*, NY 90 (11-19-80)

Chenango County

Oxford, *Burr, Theodore, House*, Fort Hill Sq. (9-11-81)

Dutchess County

Hyde Park, *Hyde Park Railroad Station*, River Rd. (9-11-81)

Erie County

Buffalo, *Dorsheimer, William, House*, 434 Delaware Ave. (11-21-80)

Buffalo, *Lafayette High School*, 370 Lafayette Ave. (12-3-80)

Franklin County

Paul Smiths, *Smith's, Paul, Hotel Store*, Paul Smith's College Campus (12-3-80)

Fulton County

Johnstown, *Fulton County Jail (Tryon County Jail)* Perry and Montgomery Sts. (10-19-81)

Greene County

Athens, *VILLAGE OF ATHENS MULTIPLE RESOURCE AREA*. This area includes: *Athens Lower Village Historic District*, Roughly bounded by Hudson River, NY 385, Vernon and Market Sts.; *Brick Row Historic District*, Off NY 385; *Stranahan-DelVecchio House*, N. Washington St.; *Van Loon, Albertus, House*, N. Washington St.; *Zion Lutheran Church*, N. Washington St. (11-28-80)

Jefferson County

Brownville, *Archer, William, House (Stone Houses of Brownville Thematic Resources)* 112 Washington St. (11-19-80)

Brownville, *Brown, Gen. Jacob, Mansion (Stone Houses of Brownville Thematic Resources)* Brown Blvd. (11-19-80)

Brownville, *Brownville Hotel (Stone Houses of Brownville Thematic Resources)* Brown Blvd. and W. Main St. (11-19-80)

Brownville, *Vogt House (Stone Houses of Brownville Thematic Resources)* 110 Main St. (11-19-80)

Brownville, *Walrath, Arthur, House (Stone Houses of Brownville Thematic Resources)* 114 Corner Pike (11-19-80)

Kings County

Brooklyn, *Park Slope Historic District*, Roughly bounded by Prospect Park West, Berkeley Pl., 15th St., 6th, 7th and Flatbush Aves., (11-21-80)

New York, *Parachute Jump*, Coney Island (9-2-80)

Livingston County

North Bloomfield, *North Bloomfield School*, 7840 Martin Rd. (5-28-81)

Madison County

Oneida, *Cottage Lawn*, 435 Main St. (11-6-80)

Monroe County

Riga, *Riga Academy*, 3 Riga-Mumford Rd. (11-21-80)

New York County

Liberty Island, *Statue of Liberty National Monument, Ellis Island and Liberty Island* (10-15-66) (also in Hudson County, NJ)

New York, *Houses at 83 and 85 Sullivan Street*, 83-85 Sullivan St. (11-17-80)

New York, *New York Public Library, Hamilton Grange Branch*, 503 and 505 W. 145th St. (7-23-81)

New York, *Stuyvesant Square Historic District*, Roughly bounded by Nathan D. Perleman Pl., 3rd Ave., E. 18th and E. 15th Sts. (11-21-80)

Onondaga County

Syracuse, *Central Technical High School*, 700-745 S. Warren St. (4-9-81)

Orange County

Goshen, *Church Park Historic District*, Park Pl., Main and Webster Sts. (11-17-80)

Montgomery, *MONTGOMERY VILLAGE MULTIPLE RESOURCE AREA*. This area includes: *Bridge Street Historic District*; *Union Street-Academy Hill Historic District*; *Crabtree-Patchett House*, 232 Ward St.; *Miller, Johannes, House*, 272 Union St.; *Montgomery Worsted Mills*, Factory St. (11-21-80)

Newburgh, *New York State Armory*, Broadway and Johnson St. (6-18-81)

Otsego County

Cooperstown, *Cooperstown Historic District*, NY 28, NY 80 and Main St. (11-18-80)

Oneonta, *Stonehouse Farm*, E of Oneonta on NY 7 (11-19-80)

Oneonta vicinity, *Fortin Site*, (11-28-80)

Queens County

Rockaway Point vicinity, *Riis, Jacob, Park Historic District*, Rockaway Beach Blvd. (6-17-81)

Rensselaer County

Hoosick Falls, *Hoosick Falls Historic District*, Roughly bounded by RR tracks, Church, Main and Elm Sts. (12-3-80)

Richmond County

Staten Island, *St. Paul's Memorial Church and Rectory*, 225 St. Paul's Ave. (11-21-80)

Schenectady County

Schenectady, *General Electric Realty Plot*, Roughly bounded by Oxford Pl., Union Ave., Nott St., Lenox and Lowell Rds. (11-18-80)

Schoharie County

Fulton, *Shafer Site*, (11-28-80)

Seneca County

Covert, *Covert Historic District*, NY 96 (11-21-80)

Steuben County

Rheims, *Pleasant Valley Wine Company*, SR 88 (11-18-80)

Suffolk County

Bay Shore vicinity, *Fire Island Light Station*, Robert Moses Causeway (9-11-81)

Huntington, *Fort Golgotha and the Old Burial Hill Cemetery*, Main St. and Nassau Rd. (3-2-81)

Mastic Beach, *Floyd, William, House (Old Mastic)* 20 Washington Ave. (10-15-80)

Tioga County

Owego, *Owego Central Historic District*, North Ave., Park, Main, Lake, Court, and Fronts Sts. (12-3-80)

Ulster County

Cragsmoor vicinity, *Chetolah (George Inness, Jr., Estate)*, S of Cragsmoor on Vista Maria Rd. (10-21-80)

Westchester County

Katonah, *Jay, John, Homestead*, Jay St. (5-23-81) NHL

Peekskill vicinity, *Van Cortlandt Upper Manor House*, Oregon Rd. (4-2-81)

Scarsdale, *Wayside Cottage*, 1039 Post Rd. (5-1-81)

Yorktown Heights, *Yorktown Heights Railroad Station*, Commerce St. (3-19-81)

Wyoming County

North Java, *Arcade and Attica Railroad* (11-17-80)

NORTH CAROLINA

Beaufort County

Belhaven, *Belhaven City Hall*, Main St. (1-27-81)

Bertie County

Windsor vicinity, *King House*, NW of Windsor off NC 308 (8-26-71)

Brunswick County

Southport, *Southport Historic District*, Roughly bounded by Cape Fear River, Rhett, Bay, Short and Brown Sts. (11-25-80)

Chatham County

Pittsboro vicinity, *Hadley House and Grist Mill*, NW of Pittsboro on SR 2165 (11-25-80)

Cumberland County

Fayetteville, *Confederate Breastworks*, Raleigh Rd. and U.S. 401 (10-7-81)

Currituck County

Poplar Branch vicinity, *Baum Site (31CK9)*, N of Poplar Branch (12-3-80)

Davidson County

Lexington vicinity, *Sowers, Philip, House*, SR 1102 (11-25-80)

Thomasville vicinity, *Brummell's Inn*, N of Thomasville (11-25-80)

Thomasville, *Thomasville Railroad Passenger Depot*, W. Main St. (7-9-81)

NEW JERSEY—Continued

Springfield. *SAYRE HOMESTEAD*, Sayre Homestead Lane, (8-24-79); 79-11-29 079 0005006
Union. *TOWNLEY, JAMES, HOUSE*, Morris Ave. and Green Lane, (5-14-79); 79/07/19 079 0001678

warren county

Alpha vicinity. *HUNT, GEORGE, HOUSE*, SW of Alpha at 135 Warren Glen Rd, (8-12-79); 79-11-29 079 0005007
Washington. *WASHINGTON RAILROAD STATION*, Railroad Ave., (7-3-79); 79/11/01079 0003307

NEW MEXICO

Albuquerque

Albuquerque. *FIRST NATIONAL BANK BUILDING*, 217-233 Central Ave., NW, (2-2-79); 79/07/16 079 0000178

bernalillo county

O'REILLY, J.H., HOUSE, 220 9th St., NW., (1/29/79); 79/07/16 079 0000179
Albuquerque. *LEWIS, CHARLES W. BUILDING*, 1405-1407 2nd St., SW., (7-3-79); 79/11/01079 0003308
Albuquerque. DE GRACIA, TOMASA GRIEGO, HOUSE, 6939 Edith Blvd., NE
Albuquerque. *BARELA-BLEDSOE HOUSE*, 7017 Edith Blvd., NE., (3-12-79); 79/07/12 079 0000592
Albuquerque. *FIRST NATIONAL BANK BUILDING*, 217-233 Central Ave., NW., (2-2-79); 80/01/10079 0006769
Albuquerque. *O'REILLY, J.H., HOUSE*, 220 9th St., NW., (1-29-79); 80/01/10079 0006770
Albuquerque. *SAN IGNACIO CHURCH*, 1300 Walter St., NE, (8-21-79); 79-11-29 079 0005008

colfax county

Eagle Nest vicinity. *EAGLE NEST DAM*, 3 mi. SE of Eagle Nest off U.S. 64, (4-18-79); 79/07/19 079 0001677
Springer. *COWAN, R. H., LIVERY STABLE*, 220 Maxwell Ave., (8-3-79); 79-11-13 079 0004361

de baca county

Fort Sumner vicinity. *FORT SUMNER RAILROAD BRIDGE*, 2 mi. (3.2 km) W of Fort Sumner over Pecos River, (3-21-79); 79/07/12 079 0000593

lincoln county

Nogal vicinity. *EL PASO AND SOUTHWESTERN RAILWAY WATER SUPPLY SYSTEM*, S of Nogal, (11-21-79); 80/01/10079 0006377

mckinley county

Gallup. COTTON, C.N., HOUSE, 406 W. Aztec Ave. (7-10-79)
Prewitt vicinity. *ANDREWS ARCHEOLOGICAL DISTRICT*, NE of Prewitt, (5-17-79); 79/07/19 079 0001678

mora county

Cleveland. *CASSIDY, DANIEL, AND SONS GENERAL MERCHANDISE STORE*, NM 3, (8-1-79); 79-11-13 079 0004362.
Ocate. *STRONG, J. P., STORE*, NM 21 and NM 120, (7-27-79); 79-11-13 079 0004363

otero county

Cloudcroft vicinity. *MEXICAN CANYON TRESTLE*, NW of Cloudcroft off NM 83, (5-7-79); 79/07/19 079 0001679.
La Luz vicinity. *LA LUZ POTTERY FACTORY*, 2 mi. (3.2 km) E of La Luz, (05-29-79); 79/11/06 079 0002139
Tularosa. *TULAROSA ORIGINAL TOWNSITE DISTRICT*, U.S. 54/70, (2-14-79); 80/01/10079 0006771

rio arriba county

Dulce vicinity. *VICENTI SITE*, (5-14-79); 79/07/19 079 0001680
Embudo. *EMBUDO HISTORIC DISTRICT*, U.S. 64, (3-12-79); 79/07/12 079 0000594

san juan county

La Plata vicinity. *MORRIS' NO. 41 ARCHEOLOGICAL DISTRICT*, (5-17-79); 79/07/19 079 0001681

san miguel county

Las Vegas. *LIBRARY PARK HISTORIC DISTRICT*, Liberty Park and environs, (3-12-79); 79/07/12 079 0000595
Las Vegas. *LINCOLN PARK HISTORIC DISTRICT*, 7th, 8th, Lincoln and Jackson Sts, (8-6-79); 79-11-13 079 0004364
Las Vegas. *RAILROAD AVENUE HISTORIC DISTRICT*, U.S. 85, (8-6-79); 79-11-13 079 0004365
Rociada vicinity. *PENDARIES GRIST MILL*, 1 mi. (1.6 km) E of Rociada off NM 105, (2-2-79); 80/01/10079 0006772

santa fe county

Lamy vicinity. *APACHE CANYON RAILROAD BRIDGE*, 3 mi. (4.8 km) NE of Lamy over Galisteo Creek, (4-27-79); 79/07/19 079 0001682
Santa Fe. *VIERRA, CARLOS, HOUSE*, 1002 Old Pecos Trail, (8-3-79); 79-11-13 079 0004366

sierra county

Arrey vicinity. *PERCHA DIVERSION DAM*, 2 mi. (3.2 km) NE of Arrey, (4-6-79); 79/07/16 079 0001081
Elephant Butte vicinity. *ELEPHANT BUTTE DAM AND RESERVOIR*, NW of Elephant Butte off NM 51, (4-9-79); 79/07/16 079 0001082

socorro county

Magdalena vicinity. *CLEMENS RANCHHOUSE*, S of Magdalena, (4-18-79); 79/07/19 079 0001683

taos county

Taos. *GASPARD, LEON, HOUSE*, Raton Rd., (2-23-79); 79/07/12 079 0000596
Tres Piedras. *TRES PIEDRAS RAILROAD WATER TOWER*, off U.S. 285, (2-2-79); 80/01/10079 0006773
Tres Piedras. *TRES PIEDRAS RAILROAD WATER TOWER*, Off U.S. 285, (2-2-79); 79/07/16 079 0000182

torrance county

Moriarty vicinity. *MORIARTY ECLIPSE WINDMILL*, 2 (3.2 km) W of Moriarty off NM 222, (06-04-79); 79/11/06 079 0002140

valencia county

Los Lunas. *ATCHISON, TOPEKA, AND SANTA FE RAILROAD DEPOT*, U.S. 85, (8-1-79); 79-11-13 079 0004367
San Mateo vicinity. *SAN MATEO ARCHEOLOGICAL SITE*, NW of San Mateo, (5-17-79); 79/07/19 079 0001684

waseca county

Janesville vicinity. *SEHA SORGHUM SYRUP MILL*, SE of Janesville off MN 60, (06-04-79); 79/11/06 079 0002141

NEW YORK

albany county

Albany. *TEN BROECK HISTORIC DISTRICT*, irregular pattern along Ten Broeck St. from Clinton Ave. to Livingston Ave., (1-25-79); 80/01/10079 0006774
Albany. *TEN BROECK HISTORIC DISTRICT*, Irregular pattern along Ten Broeck St. from Clinton Ave. to Livingston Ave., (1-25-79); 79/07/16 079 0000183
Cohoes. *SILLIMAN MEMORIAL PRESBYTERIAN CHURCH*, Mohawk and Seneca Sts., (8-1-79); 79-11-13 079 0004368
Menands. *ALBANY RURAL CEMETERY*, Cemetery Ave, (10-25-79); 80/01/0079 0006188

bronx county

Bronx. *HALL OF FAME COMPLEX*, Bronx Community College campus, (9-7-79); 79-11-29 079 0005009

chenango county

Greene. *ROSEKRANS BUILDING*, 62 Genesee St, (7-27-79); 79-11-13 079 0004369

columbia county

Claverack. *VAN HOESEN, JAN, HOUSE*, NY 66, (8-1-79); 79-11-13 079 0004370
Clermont vicinity. *SIXTEEN-MILE DISTRICT*, W of Clermont along Hudson River, (3-7-79) (also in Dutchess County); 79/07/13 079 0000597
Germantown vicinity. *CLERMONT ESTATES HISTORIC DISTRICT*, S of Germantown, (5-7-79); 79/07/19 079 0001686
Linlithgo vicinity. *OAK HILL*, N of Linlithgo on Oak Hill Rd., (6-26-79); 79/11/01079 0003310
Valatie. *FIRST PRESBYTERIAN CHURCH*, Church St, (9-7-79); 79-11-29 079 0005010

cortland county

Preble vicinity. *LITTLE YORK PAVILION*, S of Preble off NY 281, (7-27-79); 79-11-13 079 0004371

dutchess county

Beacon. *EUSTATIA*, 12 Monell Pl., (2-26-79); 79/07/13 079 0000599
Poughkeepsie. *POUGHKEEPSIE RAILROAD BRIDGE*, Spans Hudson River, (2-23-79) (also in Ulster County); 79/07/13 079 0000600
Rhinebeck. *RHINEBECK VILLAGE HISTORIC DISTRICT*, U.S. 19 and NY 308, (8-8-79); 79-11-13 079 0004372

erie county

Buffalo. *BLESSED TRINITY ROMAN CATHOLIC CHURCH BUILDINGS*, 317 LeRoy Ave, (8-3-79); 79-11-13 079 0004373
Hamburg vicinity. *KLEIS SITE*, (4-20-79); 79/07/19 079 0001087
West Seneca. *EATON SITE*, (4-3-79); 79/07/16 079 0001083

essex county

Elizabethtown. *HAND-HALE HISTORIC DISTRICT*, River and Maple Sts., (3-5-79); 79/07/13 079 0000601

genesee county

LeRoy. *KEENEY HOUSE*, 13 W. Main St, (8-11-79); 79-11-29 079 0005011

greene county

LEEDS VICINITY. *NEWKIRK HOMESTEAD*, NW of Leeds on Sandy Plains Rd., (7-22-79); 79/11/01079 0003311

Newark, *Lincoln Park Historic District Addendum*, 1078½, 1080½ Broad St.

Hudson County

Southern Hoboken Historic District
Jersey City, *Bergen Station Post Office*, 750–768 Grand St.
Jersey City, *Buildings at 273–273½ Tenth Street*

Hunterdon County

Dart Mill Historic District, Lambertville, *Lilley Mansion*

Monmouth County

Asbury Park, *Steinbach Building* Long Branch, *Congregation Brothers of Israel Synagogue*
Long Branch, *Doll House at 87 Second Avenue*
Long Branch, *Summer House at 87 Second Avenue*

Morris County

Upper Longwood Forge Historic District

Passaic County

Dundee Canal

Somerset County

Lyons, *Veterans Administration Medical Center* (63.3)

NEW MEXICO

Fort Bliss Multiple Resource Area

Bernalillo County

Archeological Site NM:0:3:1:11
Archeological Site NM:1:15:3:6

Dona Ana County

Archeological Site OCA:FA1
Archeological Site OCA:FA:2
Archeological Site OCA:FA5
Archeological Site OCA:FA8
Archeological Site OCA:FA9
Archeological Site OCA:FA:11
Archeological Site OCA:FA:12
Archeological Site OCA:FA:13
Archeological Site OCA:FA:15
Archeological Site OCA:FA:16
Archeological Site OCA:FA:20
Archeological Site OCA:FA:21
Archeological Site OCA:FA:22
Archeological Site OCA:FA:23
Archeological Site OCA:FA:24

Otero County

Fairchild Site, *Dog Canyon White Sands National Monument*

San Juan County

Archeological Site LA 20239

NEW YORK

Portchester, *Putnam-Mellor Engine and Hose Company*

Albany County

Albany, *South End Historic District-Plum Street Extension*

Bronx County

New York, *P.S. 15 Little Red Schoolhouse*, 4010 Dyre Ave.
New York, *P.S. 17 City Island Community Center*, 190 Fordham

South Bronx, *Morris High School Historic District*

Broome County

Binghamton, *Parlor City Historic District* (63.3)

Columbia County

Hudson, *Hudson Historic District* (63.3)

Erie County

Buffalo, *Buffalo Plank Road (UB 1682)*

Kings County

Brooklyn, *Brooklyn Army Terminal*

New York County

New York, *City Center Dance Theater*, W. 55th St.

Onondaga County

Syracuse, *Main Post Office*, 101 N. Clinton St.

Monroe County

Rochester, *Commercial Historic District*, South Ave.

Rockland County

Clarkstown, *Upper Nyack Firehouse*, 330 N. Broadway
Grand View on Hudson, *Grand View Village Hall*, 118 River Rd.
Haverstraw, *Haverstraw King's Daughters Public Library* (63.3)

Suffolk County

Northport, *Veteran's Administration Medical Center*, Middleville Rd.
Southold, *Southold Library*, Main Rd. (63.3)

Tompkins County

Ithaca, *St. James AME Zion Church*

Westchester County

Tarrytown, *Pierson School*

NORTH CAROLINA

Caswell County

Womack's Mill (County Line Creek Watershed) (also in Rockingham County)

Cumberland County

Shaw-Gillis House
Fayetteville, *Poe, Edgar Allen, House*, 208 Bradford Ave.

Durham County

Durham, *Old North Durham Historic District*

Gaston County

Mount Holly, *Davenport House*, 1505 N. Main St.
Mount Holly, *Nantz House*, 714 N. Main St.

Guilford County

Old Greensborough Historic District Boundary Extension, Elm, S. Davie, E. Washington, W. Washington and S. Green Sts.

Hoke County

McNeill House

Madison County

California Creek Missionary Baptist Church

Martin County

Smithwick-Green-Clark House, U.S. 17

Woolard-Perry House

Pitt County

Bethel vicinity, *Brown, Henry Williamston, House*
Bethel vicinity, *Brown, Herbert P., House*
Bethel vicinity, *Moore House*

NORTH DAKOTA

McKenzie County

Arnegard, *Cinnamon Creek Ridge Archeological District*

Mercer County

Zap, *Archeological Site 32ME218* (63.3)

OHIO

Allen County

Lima, *Holland Block Annex*, 112–116 E. High St.

Athens County

Athens, *West Hills Historic District*
Glouster, *Hisylvania No. 2 2 Mine Entrances and Tipple*

Cuyahoga County

Strongsville, *Strongsville Activity Center*

Hamilton County

Cincinnati, *Block 23 (Ben's Department Store)* Bounded by Central Ave., 7th, 8th, and former John Sts.
Cincinnati, *Building at 1032 Foracker Avenue*
Cincinnati, *Buildings at 1307–1309 Pendleton Street*
Cincinnati, *Building at 1422 Apjones Street*
Cincinnati, *Building at 2843 Melrose Avenue*
Cincinnati, *Building at 3022 Park*
Cincinnati, *Buildings at 4008, 4010 and 4012 Gulow Street*
Cincinnati, *Building at 4217 Mad Anthony Street*
Cincinnati, *Building at 4224 Williams Place*
Cincinnati, *Building at 4267 Williams Place*
Cincinnati, *Carmel United Presbyterian Church*, 3549 Reading Rd.
Cincinnati, *St. Leo's Church Complex*, Baltimore St. and St. Leo Pl.

Hocking County

Logan, *Hocking County Courthouse*, E. Main St. (63.3)

Knox County

Lehmon Road Bridge, SR 259 (63.3)

Scioto County

Portsmouth, *Fowler Building*, 700 Second St. (63.3)
Portsmouth, *Fowler Property #1*, 716 Second St. (63.3)
Portsmouth, *Fowler Property #2*, 712 Second St. (63.3)

Summit County

Akron, *Mustill, Frederick, House*, 234 Ferndale St.
Akron, *Mustill Store*, 248 Ferndale St.
Akron, *Ohio Canal Lock No. 15*
Akron, *Ohio Canal Locks No. 10–14 (Staircase of Locks)*

presented in designs by noted a
McKim, Mead, and Wh
erwhelmingly successful econ
ent stimulated by Pan-Americ
01. Prominent residents inclu
odyear and Millard Fillm
blic/private.

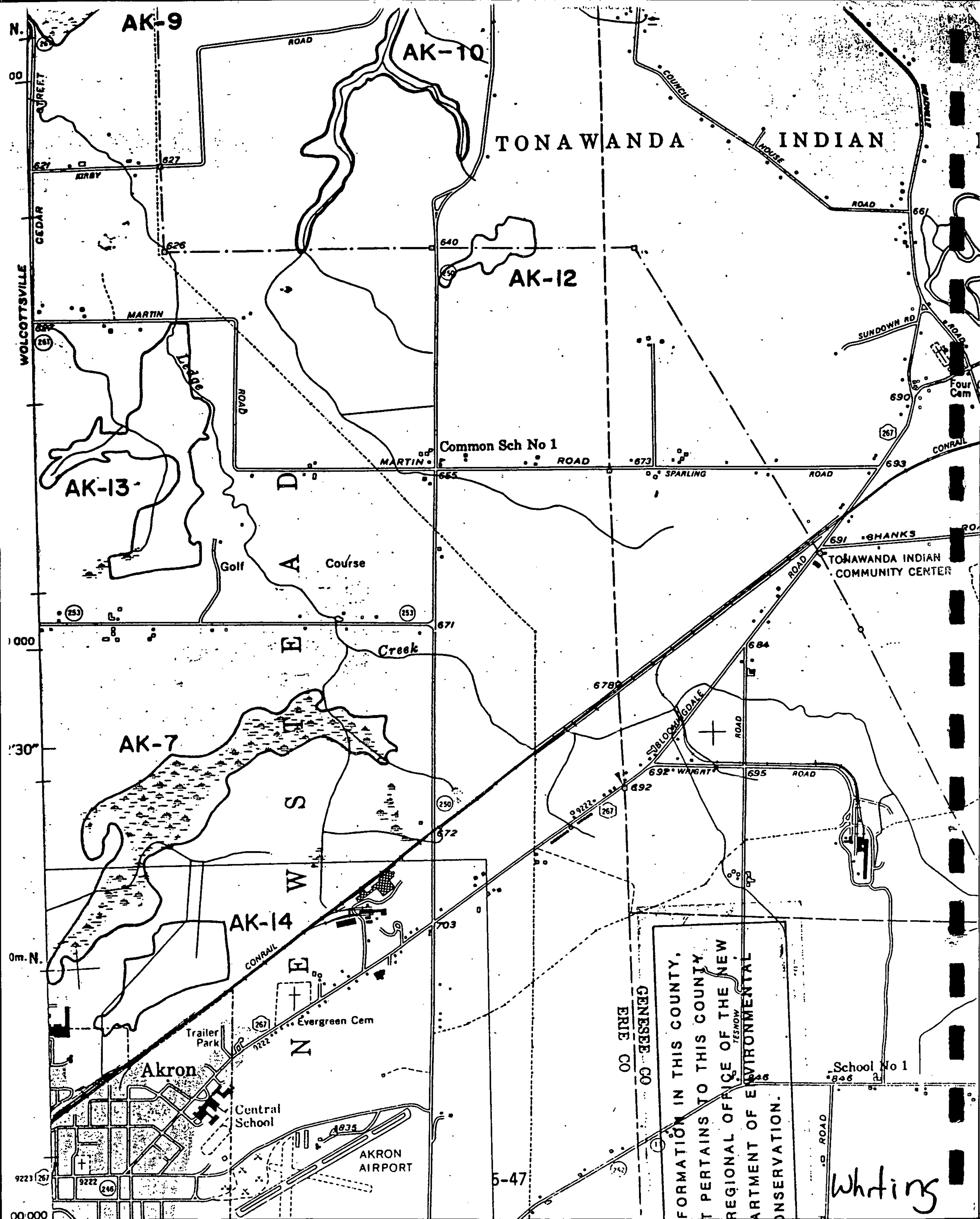
ffalo. GUARANTY
RUDENTIAL BUILDING) .
arl Sts., 1894–1895. Lo
chitect. Steel frame, terra cotta
2 stories, U-shaped, flat roof;
trances, each with large lunett
vel; first 2 stories topped by n
rm base for upper levels, upp
tion organized in vertical band
ches; oculi in coved section t
corative terra cotta ornament
vers entire building; interior h
n and leaded glass skylight,
d cast iron stairway; 1st-story
ered 1970 to form flat plane
illivanesque. A milestone in
aper development by Louis Sul
ccessfully integrates structural
mentation. *Private:* NHL; HABS.

ffalo. MACEDONIA BAPTI
1 Michigan Ave., 1845. B
ctangular, gabled roof, encl
stibule flanked by round arch
cessed rectangular panels, ro
ribed stone plaque above entr
eetinghouse plan with apse; 2
ns. Social and religious cen
mmunity for 125 years. Parish
ard Nash, a founder of the
eague and the local branch o
ivate.

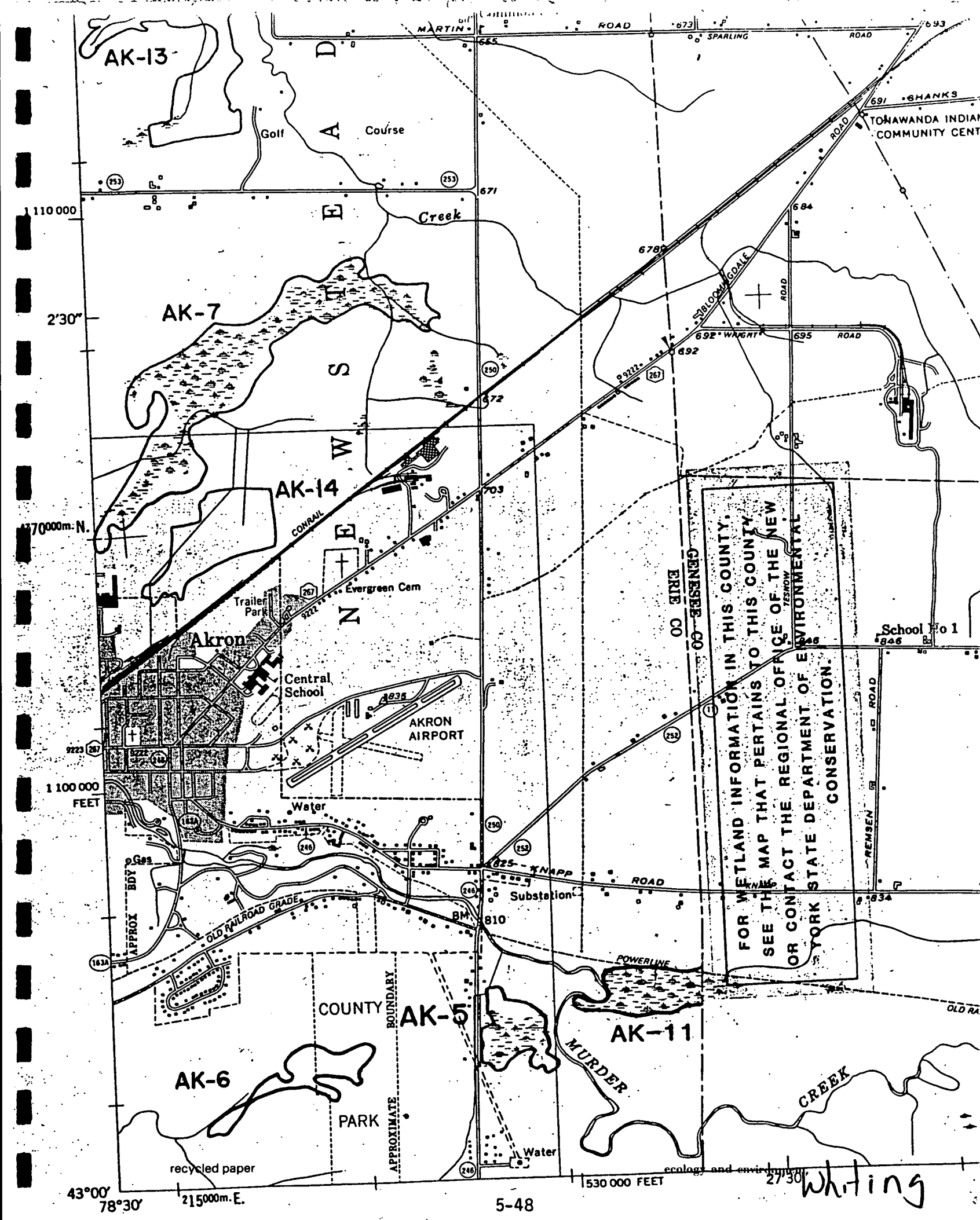
ffalo. PIERCE ARROW FAC
EX, Elmwood and Great Arro
lbert Kahn, architect. Factory
ining 14 major buildings mainl
ncrete steel with brick and
alls; saw-tooth roof sections, lar
'; some Arts and Crafts decor,
Administration Building fro
nthesis of trends foreshadov
ents in factory design; owned ar
erce Arrow Co. until 1938;
nverted for diversified comme
le private.

ffalo. ST. PAUL'S
ATHEDRAL, 125 Pearl St.
chard Upjohn, architect. Sands
ry, irregular shape, gabled roo
e sections, some with modillio
foil arcading; front 3-stage t
ire, entrance porch, transept c
nce and adjacent 3-stage be
ire, nave lancet windows with
ttresses; towers completed 187
stroyed interior; new interior
glish architect, Robert Gibs
ded. Fine example of Gothic R
apted to unusual triangular
BS.

REFERENCE NO. 5



AK-9
AK-10
AK-12
AK-13
AK-7
AK-14
TONAWANDA INDIAN
N E W S T E A D
ROAD
COUNCIL HOUSE ROAD
KIRBY
CEDAR
WOLCOTTSVILLE
MARTIN
Ledge
MARTIN ROAD
SPARLING ROAD
SUNDOWN RD
SHANKS
Four Cem
CONRAIL
Common Sch No 1
Golf Course
Creek
TONAWANDA INDIAN COMMUNITY CENTER
BLOOMINGDALE ROAD
WRIGHT ROAD
Trailer Park
Evergreen Cem
Akron
Central School
AKRON AIRPORT
School No 1
GENESEE CO
ERIE CO
FORMATION IN THIS COUNTY,
PERTAINS TO THIS COUNTY
REGIONAL OFFICE OF THE NEW
ARTMENT OF ENVIRONMENTAL
ONSERVATION.
Whiting


AK-13
AK-7
AK-14
AK-5
AK-6
AK-11
Golf Course
Creek
Akron
Central School
AKRON AIRPORT
Evergreen Cem
Trailer Park
CONRAIL
Water
Substation
OLD RAILROAD GRADE
APPROX BDY
COUNTY BOUNDARY
APPROXIMATE
PARK
POWERLINE
MURDER CREEK
MARTIN ROAD
SPARLING ROAD
HANKS ROAD
TONAWANDA INDIAN COMMUNITY CENT
BLOOMINGDALE ROAD
WRIGHT ROAD
KNAPP ROAD
REMSEN ROAD
School No 1
GENESEE CO
ERIE CO
FOR WETLAND INFORMATION IN THIS COUNTY, SEE THE MAP THAT PERTAINS TO THIS COUNTY OR CONTACT THE REGIONAL OFFICE OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
1 110 000
2'30"
1 100 000 FEET
4370000m. N.
43°00'
78°30'
215000m. E.
530 000 FEET
27'30"
recycled paper
ecology and environment
Whiting

U.S. Fish and Wildlife Service
1 Gateway Center, Suite 700
Newton Corner, Massachusetts 02158

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

CONTROLLED WATER REGIM

WETLAND LEGEND

U – Primarily represents upland areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

ECOLOGICAL SYSTEM: E – ESTUARINE

Ecological Subsystem

1 – Subtidal

CLASS	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	RF – REEF	OW – OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	2 Mollusc 3 Worm	

2 – Intertidal

CLASS	AB – AQUATIC BED	RF – REEF	FL – FLAT	SB – STREAMBED	RS – ROCKY SHORE	BB – BEACH/BAR	EM – EMERGENT	SS – SCRUB/SHRUB	FO – FORESTED
Subclass	1 Submergent Algal 2 Submergent Vascular 3 Submergent Unknown 7 Unknown Surface	2 Mollusc 3 Worm	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Boulder 6 Vegetated Non-pioneer	1 Cobble/Gravel 2 Sand	1 Persistent 2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent 5 Narrow-leaved Persistent 6 Broad-leaved Persistent	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 6 Dead 7 Deciduous 7 Evergreen	1 Broad-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 6 Dead 7 Deciduous 7 Evergreen

ECOLOGICAL SYSTEM: P – PALUSTRINE

No Subsystem

CLASS	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	FL – FLAT	ML – MOSS/ LICHEN	EM – EMERGENT	SS – SCRUB/SHRUB	FO – FORESTED	OW – OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent 5 Narrow-leaved Persistent 6 Broad-leaved Persistent	1 Broad-leaved Deciduous 2 Needle-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 6 Dead 7 Deciduous 7 Evergreen	1 Broad-leaved Deciduous 2 Needle-leaved Deciduous 3 Broad-leaved Evergreen 4 Needle-leaved Evergreen 6 Dead 7 Deciduous 7 Evergreen	

1 – Limnetic

CLASS	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	OW – Un
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	

ECOLOGICAL SYSTEM: R – RIVERINE

Ecological Subsystem

1 – Tidal

CLASS	EM – EMERGENT(1)	RB – ROCK BOTTOM	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	FL – FLAT	OW – OPEN WATER/ Unknown Bottom
Subclass	2 Nonpersistent 3 Narrow-leaved Nonpersistent 4 Broad-leaved Nonpersistent	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	

2 – Lower Perennial

CLASS	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	SB – STREAMBED	RS – ROCKY SHORE	BB – BEACH/BAR	OW – OPEN WATER/ Unknown Bottom
Subclass	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand	

3 – Upper Perennial

CLASS	UB – UNCONSOLIDATED BOTTOM	AB – AQUATIC BED	FL – FLAT
Subclass	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non-pioneer

4 – Intermittent

CLASS	SB – STREAMBED
Subclass	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic

5 – Unknown Perennial

CLASS	RS – ROCKY SHORE	BB – BEACH/BAR	OW – OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand	

(1) EM – EMERGENTS are only found in the Riverine Tidal and Riverine Lower Perennial Ecological Subsystems. All other classes are found in all Riverine Ecological Subsystems.

In order to more adequately desc
may be applied at the c

WATER REGIME(1)

Non-Tidal

A	Temporary	H	Permanent	K	Artificial
B	Saturated	J	Intermittently Flooded	L	Subtidal
C	Seasonal	K	Artificial	M	Irregularly Exposed
D	Seasonal Well-drained	Z	Intermittently Exposed/Permanent	N	Regular
E	Seasonal Saturated	W	Intermittently Flooded/Temporary	P	Irregular
F	Semipermanent	Y	Saturated/Semipermanent/Seasonal		
G	Intermittently Exposed	U	Unknown		

Tic

(1) Information on the water regime modifiers found on this legend, but not found

...l regulatory agencies with jurisdic-
...define and describe wetlands in a
...at used in this inventory. There is
...e design or products of this inven-
...s of proprietary jurisdiction of any
...government or to establish the
...he regulatory programs of govern-
...intending to engage in activities in-
...within or adjacent to wetland areas
...f appropriate Federal, State or local
...ecified agency regulatory programs
...ons that may affect such activities.

CONTROLLED WATER REGIME

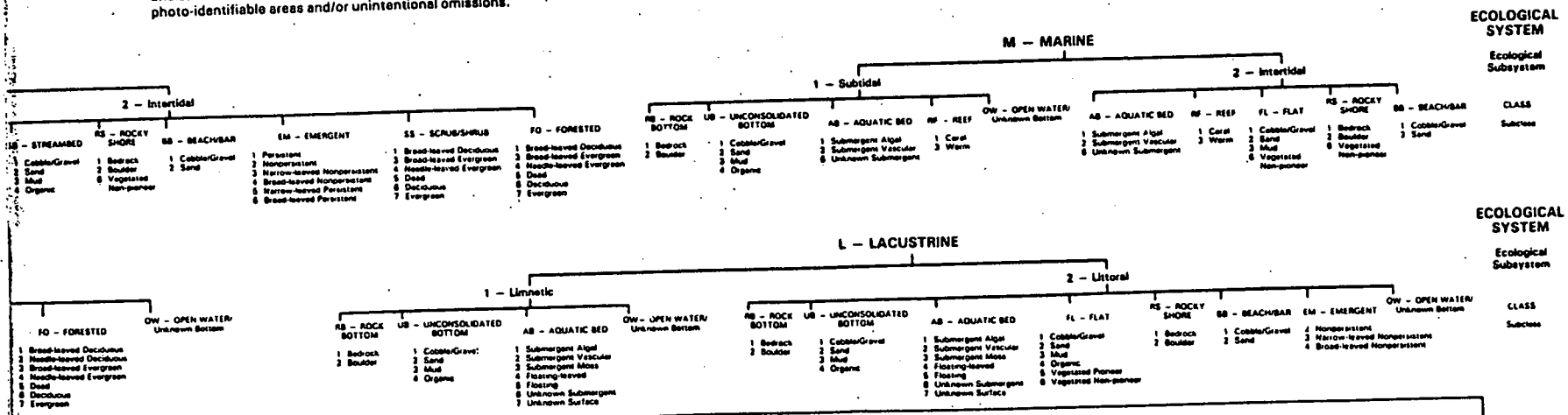
SCALE: _____
TYPE: B-W
DATE: / /
SCALE: _____
TYPE: _____
DATE: / /
SCALE: _____
TYPE: _____

...U.S. DEPARTMENT...
FISH AND WILDLIFE SERVICE

Prepared by Office of Biological Services
for the National Wetlands Inventory

WETLAND LEGEND

U – Primarily represents upland areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.



MODIFYING TERMS

In order to more adequately describe wetland and aquatic habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME(1)

Non-Tidal

- A Temporary
- B Saturated
- C Seasonal
- D Seasonal Well-drained
- E Seasonal Saturated
- F Semipermanent
- G Intermittently Exposed
- H Permanent
- J Intermittently Flooded
- K Artificial
- Z Intermittently Exposed/Permanent
- W Intermittently Flooded/Temporary
- Y Saturated/Semipermanent/Seasonal
- U Unknown

Tidal

- L Subtidal
- M Irregularly Exposed
- N Regular
- P Irregular
- R Seasonal Tidal
- S Temporary Tidal
- T Semipermanent Tidal
- V Permanent Tidal
- U Unknown

WATER CHEMISTRY

Coastal Salinity

- 1 Hyperhaline
- 2 Euhaline
- 3 Mixohaline (Brackish)
- 4 Polyhaline
- 5 Mesohaline
- 6 Oligohaline
- 0 Fresh

Inland Salinity

- 7 Hypersaline
- 8 Eusaline
- 9 Mixosaline
- 0 Fresh

pH Modifiers for all Fresh Water

- a Acid
- i Circumneutral
- l Alkaline

SOIL

- 8 Organic
- n Mineral

SPECIAL MODIFIERS

- b Beaver
- d Partially Drained/Ditched
- f Farmed
- h Diked/Impounded
- r Artificial
- s Spoil
- x Excavated

(1) Information on the water regime modifiers found on this legend, but not found in the classification system, may be obtained from the above listed source.

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NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FRESHWATER WETLAND DATA AND CLASSIFICATION FORM

Whiting

WETLAND NAME: _____ WETLAND IDENTIFICATION # AK-7

LOCATION:

Quad: ~~(USGS)~~ (DOT) AKRON County ERIE

Town: NEWSTEAD Miles 1/2 Dir. N From AKRON

DATE(S) OF FIELD RECONNAISSANCE AND PERSONNEL:

Date(s)	Weather	Investigator(s)
31 Dec 1984	N/A	GR Batcheller
		aerial photo interpretation

WETLAND SIZE: 150 acres

WETLAND CLASS: I II (III) IV (circle)

VEGETATIVE COMMUNITY:

COVERTYPES (Dominant species and calculated percentage, additional species inventory on page 3)

Wet meadow (1) _____ %

Emergent marsh (2) _____ %

Deciduous Swamp (3) 80 %

red maple, Am. elm, green ash

Coniferous Swamp (4) _____ %

Shrub swamp (5) 20 %

Arrowwood, Silky dogwood, red-osier dogwood

Submergent and/or floating (6) _____ %

Wetland open water (7) _____ %

ECOLOGICAL ASSOCIATIONS:

Covertype Groups

1+2 = _____ %
3+4+5= 100 %
6+7 = _____ %

Kettlehole Bog NO

Associated with Open Water NO

Water N/A

Proximity to Mud Flat: NO

Island Present NO

Adjacent to Class C(T) or higher Stream ~~NO~~ NO

SPECIAL FEATURE:

1. Resident Animal Habitat For:

White-tailed deer
Raccoon

2. Migration Habitat For:

	Yes	No	Unknown
3. Endangered or threatened plant and/or animal species present		X	
4. Vulnerable animal and/or plant species present		X	
5. Unusual animal species abundance or diversity for State or ecological region of State		X	
6. Unusual animal species abundance or diversity for county		X	
7. Archeological or paleontological significance		X	
8. Significant (unusual or excellent representation) geological feature			X
9. Alkalinity of at least 50 ppm			X
10. Adjacent to naturally fertile upland	X		
11. Storm water retention facility			X
12. Adjacent or contiguous to surface water used as public water supply		X	
13. Provides pollutant treatment			X
14. Provides aquifer recharge		X	
15. Within urbanized area		X	
16. Visible from important highway or passenger railroad		X	
17. One of 3 largest wetlands of same covertype within a city/town			X
18. One of 3 largest wetlands of any covertype in a city/town			X
19. Within a town where wetland acreage is less than 1% of total			X
20. Within a publicly owned recreation area		X	
21. On publicly owned land open to public use		X	

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ecology and environment

AND CLASSIFICATION MATRIX (Circle attributes and check class; a wetland with no Class I, II, III characteristics is a Class IV Wetland)

CLASS I____ CLASS II____ CLASS III X

1. Classic Kettlehole bog
2. Res. hab., thr./endg. anim. sp.
3. Thr./endg. plant sp.
4. Unus. abund./div. anim. sp. in region or state
5. Significant flood protection for substantially developed area
6. Adj./contig. to reservoir or public water supply or hydraulically connected to public water supply aquifer.
7. Four or more Class II characteristics
8. Emgt. marsh; pur. loosestrife and/or phragmites max. 66% of covertype
9. 2 or more wetland structural groups
10. Contig. to tidal wetlands
11. Assoc. with ext. perm. open water
12. Adj./contig. C(t) or higher stream
13. ( ) mig. hab. thr./endg. anim. sp.
14. ( ) Res. hab. vuln. anim. sp.; state
15. ( ) Vuln. plant sp.; state
16. Unus. abund/dv. anim. sp.; county
17. Archeo./paleo. significance
18. Unusual geologic feature
19. Flood protection value; agr., light or planned development area
20. Hydraulically connected to aquifer
21. Tertiary treatment capacity for a sewage disposal system
22. Within urbanized area
23. 1 of 3 lgst. wetlands; city, town, NYC Borough
24. In publicly owned recreation area
25. Emgt. marsh, pur. loosestrife and/or phragmites min. 66% of covertype
26. Deciduous swamp
27. Shrub swamp
28. Floating and/or submergent veg.
29. Wetland open water
30. Contains island
31. Total alkalinity at least 50 PPM
32. Adj. to fert. upland; high base soils
33. Res./mig. hab. of vuln. anim. sp. Res. for region; mig. for region or state
34. Vuln. plant sp.; region
35. Part of significantly pollute permanent open water system in which pollution reduction occurs
36. Visible and aesthetic/open space value
37. 1 of 3 lgst. wetlands of same covertype within a town
38. Wetland acreage max. 1% of total town acreage
39. Publicly owned land open to public use

EXPLANATORY NARRATIVE FOR SPECIAL FEATURES AND CLASSIFICATION, ADDITIONAL SPECIES INVENTORY (List Codominants, understudy, ground cover, and occassional species as necessary for each covertype); include soils information, if available:

Aerial Photo 2-31-44

Original Field Work conducted prior to 1981.

This Report Completed to update Office Files.

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION — Whiting

FRESHWATER WETLAND DATA AND CLASSIFICATION FORM

WETLAND NAME: NONE WETLAND IDENTIFICATION # AK-14

LOCATION:

Quad: (USGS) ~~(DOT)~~ AKRON County ERIE

Town: NEWSTEAD Miles 1/4 Dir. N From AKRON

DATE(S) OF FIELD RECONNAISSANCE AND PERSONNEL:

Date(s)	Weather	Investigator(s)
NOT FIELD	INSPECTED	G.R. Batchelor (aerial photo interpretation)

WETLAND SIZE: 37.2 acres

WETLAND CLASS: I II (III) IV (circle)

VEGETATIVE COMMUNITY:

COVERTYPES (Dominant species and calculated percentage, additional species inventory on page 3)

Wet meadow (1) ____ %

Emergent marsh (2) ____ %

Deciduous Swamp (3) 100 %

Acer rubrum Fraxinus pennsylvanica

Ulmus spp.

Coniferous Swamp (4) ____ %

Shrub swamp (5) ____ %

Submergent and/or floating (6) ____ %

Wetland open water (7) ____ %

ECOLOGICAL ASSOCIATIONS:

Covertype Groups

1+2 = ____ %
3+4+5= 100 %
6+7 = ____ %

Kettlehole Bog NO

Associated with Open Water NO

Water N/A

Proximity to Mud Flat: NO

Island Present NO

Adjacent to Class C(T) or higher Stream NO

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SPECIAL FEATURE:

1. Resident Animal Habitat For:

No obligate WETLAND species.

2. Migration Habitat For:

No obligate WETLAND species.

	Yes	No	Unknown
3. Endangered or threatened plant and/or animal species present		X	
4. Vulnerable animal and/or plant species present		X	
5. Unusual animal species abundance or diversity for State or ecological region of State		X	
6. Unusual animal species abundance or diversity for county		X	
7. Archeological or paleontological significance		X	
8. Significant (unusual or excellent representation) geological feature			X
9. Alkalinity of at least 50 ppm			X
10. Adjacent to naturally fertile upland			X
11. Storm water retention facility			X
12. Adjacent or contiguous to surface water used as public water supply		X	
13. Provides pollutant treatment			X
14. Provides aquifer recharge		X	
15. Within urbanized area		X	
16. Visible from important highway or passenger railroad		X	
17. One of 3 largest wetlands of same covertype within a city/town			X
18. One of 3 largest wetlands of any covertype in a city/town			X
19. Within a town where wetland acreage is less than 1% of total			X
20. Within a publicly owned recreation area		X	
21. On publicly owned land open to public use		X	

D CLASSIFICATION MATRIX (Circle attributes and check class; a wetland with no Class I, II, III acteristics is a Class IV Wetland)

CLASS I____ CLASS II____ CLASS III X

1. Classic Kettlehole bog
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3. Thr./endg. plant sp.
4. Unus. abund./div. anim. sp. in region or state
5. Significant flood protection for substantially developed area
6. Adj./contig. to reservoir or public water supply or hydraulically connected to public water supply aquifer.
7. Four or more Class II characteristics
8. Emgt. marsh; pur. loosestrife and/or phragmites max. 66% of covertype
9. 2 or more wetland structural groups
10. Contig. to tidal wetlands
11. Assoc. with ext. perm. open water
12. Adj./contig. C(t) or higher stream
13. ( ) mig. hab. thr./endg. anim. sp.
14. ( ) Res. hab. vuln. anim. sp.; state
15. ( ) Vuln. plant sp.; state
16. Unus. abund/dv. anim. sp.; county
17. Archeo./paleo. significance
18. Unusual geologic feature
19. Flood protection value; agr., light or planned development area
20. Hydraulically connected to aquifer
21. Tertiary treatment capacity for a sewage disposal system
22. Within urbanized area
23. 1 of 3 lgst. wetlands; city, town, NYC Borough
24. In publicly owned recreation area
25. Emgt. marsh, pur. loosestrife and/or phragmites min. 66% of covertype
26. Deciduous swamp
27. Shrub swamp
28. Floating and/or submergent veg.
29. Wetland open water
30. Contains island
31. Total alkalinity at least 50 PPM
32. Adj. to fert. upland; high base soils
33. Res./mig. hab. of vuln. anim. sp. Res. for region; mig. for region or state
34. Vuln. plant sp.; region
35. Part of significantly pollute permanent open water system in which pollution reduction occurs
36. Visible and aesthetic/open space value
37. 1 of 3 lgst. wetlands of same covertype within a town
38. Wetland acreage max. 1% of total town acreage
39. Publicly owned land open to public use

EXPLANATORY NARRATIVE FOR SPECIAL FEATURES AND CLASSIFICATION, ADDITIONAL SPECIES INVENTORY (List Codominants, understudy, ground cover, and occassional species as necessary for each covertype); include soils information, if available:

AERIAL PHOTO 2-31-49 (JUST NORTH OF NEW YORK CENTRAL RAILROAD)

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REFERENCE NO. 6

Dangerous Properties of Industrial Materials

Fifth Edition

N. IRVING SAX

Assisted by:

Marilyn C. Bracken/Robert D. Bruce/William F. Durham/Benjamin Feiner/
Edward G. Fitzgerald/Joseph J. Fitzgerald/Barbara J. Goldsmith/John H. Harley/
Robert Herrick/Richard J. Lewis/James R. Mahoney/John F. Schmutz/
E. June Thompson/Elizabeth K. Weisburger/David Gordon Wilson

VNR VAN NOSTRAND REINHOLD COMPANY

NEW YORK CINCINNATI ATLANTA DALLAS SAN FRANCISCO
LONDON TORONTO MELBOURNE

5-58

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resultant suppression of urine. Jaundice, which may be severe, is a common result of the hemolysis. Frequently there is edema of the lungs, which may be accompanied by cyanosis. Kidney damage is common in patients surviving acute effects of the gas. A recognized carc. [*14*]

Signs of poisoning usually develop within several hours of exposure. Headache, dizziness, nausea and vomiting, epigastric pain and weakness occur early, followed by tea-colored urine, or bloody urine in the more severe cases. Some time later, albumen, and casts may appear in the urine, or, in serious cases, there may be suppression of urine. Jaundice and tenderness over the liver may appear about the same time. Blood examination shows an anemia which may be marked. In fatal cases, the patient may develop delirium, followed by coma and death. During the acute stage of poisoning and for some weeks after, arsenic may be demonstrated in the urine. See also arsenic and arsenic compounds.

Fire Hazard: Moderate, when exposed to flame.

Explosion Hazard: MOD, when exposed to Cl_2, HNO_3, ($K + NH_3$) or open flame. [*19*]

Disaster Hazard: Dangerous, extremely toxic. More toxic than its oxidation product; when heated to decomp, emits highly toxic fumes; can react vigorously with oxidizing materials.

ARSONOACETIC ACID. See aricyl acid.

ARSPHENAMINE. Syn: *3-diamino-4-dihydroxy-1-arsenobenzene hydrochloride, Ehrlich 606, salvarsan.* Light yellow hygroscopic powder. $C_{12}H_{12}As_2N_2O_2 \cdot 2HCl \cdot 2H_2O$, mw: 475.0.

Acute tox data: iv LD_{Lo} (rat) = 100 mg/kg. [*3*]

THR = HIGH via iv route. Implicated in the development of aplastic anemia. See also arsenic.

ARSYSODILA. See sodium cacodylate.

ARTHRYTIN. See amiodoxyl benzoate.

ARTIFICIAL ALMOND OIL. See benzaldehyde.

ARTIFICIAL GUM. See dextrin.

ASBESTOS PARTICLES. Syns: *asbestos dust, amosite, amphibole.*

THR = MOD via inhal route. A recog (+) carc. [*3, 6, 102*] The essential lesion produced by asbestos dust is a diffuse fibrosis which probably begins as a "collar" about the terminal bronchioles. Usually, at least 4 to 7 years of exposure are required before a serious degree of fibrosis results. There is apparently less predisposition to tuberculosis than is the case with silicosis. Prolonged inhal can cause cancer of the lung, pleura and peritoneum, and has exper produced cancers of the peritoneum, intestine, bronchus and oropharynx. [*80, 3, 6, 23*] Clinically, the most striking sign is shortness of breath of gradually increasing intensity, often associated with a dry cough. In the early stages physical signs are absent or slight; in the later stages rales may be heard, and in long standing cases there is frequently clubbing of the fingers. In early stages of the disease the chest x-rays reveal a groundglass or granular change, chiefly in the lower lung fields; as the condition progresses the heart outline becomes "shaggy," and irregular patches of mottled shadowing may be seen. "Asbestos bodies" may be found in the sputum. At autopsy, the pleurae are thickened and adherent and thick subpleural fibrous plaques are often present. Where the disease is far advanced there are usually large areas of fibrosis, with emphysematous changes in the apices and bases. The alveolar walls are thickened, and the characteristic "asbestos bodies" are found. A common air contaminant. [*45*]

ASBESTOS, BLUE. See asbestos particles.

ASBESTOS, BROWN (AMOSITE). See asbestos particles.

ASBESTOS, WHITE. See asbestos particles.

ASCARIDOLE. Syn: *ascarisin.* Unstable liquid. $C_{10}H_{16}O_2$, mw: 168.2, mp: 3.3°, bp: 40° @ 2 mm; 115° @ 15 mm, d: 1.011 @ 13°/15°.

THR = HIGH oral systemic. An exper neo. [*3*] See oil of chenopodium and peroxides, organic.

Fire Hazard: Mod, by spont chemical reaction. An oxidizer.

Explosion Hazard: Explodes when heated above 130° or when exposed to organic acids.

Disaster Hazard: Dangerous; when heated, emits toxic fumes and may explode; reacts with reducing materials.

ASCARISIN. See ascaridole.

ASCORBIC ACID. Syns: *l-ascorbic acid, vitamin C.* White crystals, sol in water, slightly sol in alcohol, insol in ether, chloroform, benzene, petroleum ether, oils and fats. $OCOCOH:COHCHCHOHCH_2OH$, mw: 176, mp: 192°.

Acute tox data: iv LD_{50} (mouse) = 518 mg/kg. [*3*]

THR = MOD via iv route. A chemical preservative food additive and a dietary supplement food additive. [*109*]

ASCORBYL PALMITATE. A white or yellowish white powder, citrus-like odor, sol in alcohol, animal and vegetable oils, slightly sol in water. $C_{22}H_{38}O_7$, mw: 414, mp: 116°–117°.

THR = No data. Probably LOW to MOD. A chemical preservative food additive. [*109*]

Disaster Hazard: Dangerous; can emit highly toxic and flam fumes of hydrogen selenide, selenium compounds on contact with water, steam, acid or acid fumes.

CALCIUM SILICATE. White to cream colored, free flowing powder. Ca_2SiO_4, $Ca_3Si_2O_7$, $Ca_3(Si_3O_9)$, $Ca_4(H_2Si_4O_{13})$, d: 2.10 @ 25°/4°.
THR = MILD irr via inhal and oral routes. An anti-caking agent food additive. Also a food additive permitted in feed and drinking water of animals and/or for the treatment of food-producing animals. [*109*]

CALCIUM SILICIDE. Glassy solid. $CaSi_2$, mw: 96.2, d: 2.5.
THR: See calcium hydroxide and silanes. Can evolve self-igniting gas with acids, reacts violently with F_2. [*19*]

CALCIUM SILICOFLUORIDE. See calcium fluosilicate.

CALCIUM SILICON.
THR = Evolves self-igniting gas with acids. [*19*]

CALCIUM SORBATE. $Ca(OOC_5H_7)_2$, mw: 262.
THR = U. Used as a chemical preservative food additive. [*109*]

CALCIUM STEARYL-2-LACTYLATE. Syn: *verv-Ca.* Free flowing white powder, sparingly sol in water. $(C_{24}H_{43}O_6)Ca$, mw: 895.
THR = Practically non-toxic. A food additive. [*109*]

CALCIUM SULFATE. Pure anhydrous white powder or odorless crystals. $CaSO_4$, mw: 136, d: 2.964, mp: 1450°.
THR = U. A nutrient and/or dietary supplement food [*109*] additive. Violent reaction with Al.
Disaster Hazard: Dangerous; see sulfates.

CALCIUM SULFHYDRATE. Syn: *calcium hydrosulfide.* Colorless, transparent crystals, decomp in air. $Ca(HS)_2$, mw: 106.21.
THR = See sulfides.

CALCIUM SULFIDE. Syns: *oldhamite, hepar calcis. calcic liver of sulfur.* Cubic, colorless crystals. CaS, mw: 72.14, bp: decomp, d: 2.18 @ 15°.
THR = See sulfides. Reacts violently with PbO_2, $KClO_3$, KNO_3. [*19*]

CALCIUM SULFITE. Hexagonal, colorless crystals. $CaSO_3 \cdot 2H_2O$, mw: 156.18, mp: $-2H_2O$ @ 100°.
THR = See sulfites.

CALCIUM SUPEROXIDE. See calcium peroxide.

CALCIUM SUPERPHOSPHATE. Syn: *calcium tri-o-phosphate (fertilizer grade).* Amorphous, white powder. $Ca_3(PO_4)_2$, mw: 310.28, mp: 1670°, d: 3.14.
THR = See calcium compounds and phosphates.

CALCIUM TELLURIDE. Simple cubic crystals. CaTe, mw: 167.69, d: 7.593.
THR = See tellurium compounds.
Fire Hazard: Mod, when heated. See hydrogen telluride, which can be evolved on contact with acids or moisture.
Explosion Hazard: Slight, when exposed to flame.
Disaster Hazard: Dangerous; emits highly toxic and flam fumes of hydrogen telluride and tellurium compounds on contact with water, steam, acid or acid fumes.

CALCIUM TELLURITE. White flakes. $CaTeO_3$, mw: 215.69, mp: >960°.
THR = See tellurium compounds.

CALCIUM TETRABORATE. White solid. CaB_4O_7, mw: 195.36, mp: 986°.
THR = See boron compounds.

CALCIUM THIOCYANATE. White crystals, deliquescent. $Ca(SCN)_2 \cdot 3H_2O$, mw: 210.30.
Acute tox data: Oral LD_{Lo} (mouse) = 120 mg/kg. [*3*]
THR = HIGH via oral route. See thiocyanates.

CALCIUM TITANATE. Powder. $CaTiO_3$, mw: 136, d: 3.98, mp: 1800°.
THR = U. Animal exper show LOW. See also titanium compounds.

CALCIUM TRI-*o*-PHOSPHATE. See calcium superphosphate.

CALCIUM ZINC ARSENATE MONOHYDRATE. Syn: *austinite.* A solid. $2CaO \cdot 2ZnO \cdot As_2O_5 \cdot H_2O$, mw: 523.
THR = HIGH. See arsenic compounds.
Disaster Hazard: Dangerous; see arsenic

CALCO URANITE. See autunite.

CALGON. See sodium hexa-*m*-phosphate.

CALIFORNIUM. Cf.
Radiation Hazard: For permissible levels see Section 5, Table 5A.5. Artificial isotope ^{249}Cf, $T_{\frac{1}{2}}$ = 360 y, decays to ^{245}Cm via α's of 5.8 MeV. Artificial isotope ^{250}Cf, $T_{\frac{1}{2}}$ = 13 y, decays to ^{246}Cm via α's of 6.0 MeV. Artificial isotope ^{251}Cf, $T_{\frac{1}{2}}$ = 800 y, decays to ^{247}Cm via α's of 5.7–5.8 MeV. Artificial isotope ^{252}Cf, $T_{\frac{1}{2}}$ = 2.6 y, decays to ^{248}Cm via α's of 6.1 MeV.

CALOMEL. See mercurous chloride.

CALOMEL + MAGNESIUM SULPHATE.
THR = An exper neo to mice via oral route. [*103*]

CALVACIN. Glycopeptide from giant puffball mushroom.
Acute tox data: ip LD_{50} (rat) = 65 mg/kg. [*3*]
THR = HIGH via ip and oral routes.

CALX. See calcium oxide.

REFERENCE NO. 7

From Page No. 10

WHITING DEVELOPMENT 7-16-87

Larren Whiting

site active 1890, has scrap gypsum, clay, gypsum block waste. decomposed paper from board. Inactive for 12-10 years site belongs to Whiting Reality, purchased 1975. Used it for fill and garbage. Transformer has been tested, no PCB's, still on site. Drums on site. Paint waste has been checked, three times:

1st check - non-hazardous
2nd check - flash point hazard.
3rd check - non-hazardous.

Liquid - 99% H_2O, 1% non volatile, they are going to collect another sample today for analysis. "Resolve" Corp is consultant, for other recently derived paint waste (100 drums) not on landfill.

Would like to sell it but is concerned with liabilities

1010 Site inspection - Calibrated HNU 58 ppm Benzene
Walked 100-150' in from Scotland, then tracks, all grey gypsum, some steel + brick, some slag.
No HNU readings on site.

1030 Inspected NW corner. Some burning evident, L. Whiting - has permission from fire Department. Has removed some gypsum for fill at (A), which is covered by concrete. Brought up question of asbestos. L. Whiting stated that Georgia Pacific had manufacture asbestos containing joint compound. Does not know what happened to paint sludge drums. Said core samples were taken by a group last year on the site. Does not know who it was.
Weather: Partly sunny, 65-75°F, wind due east 0-10 mph.
OFFSITE 1110.

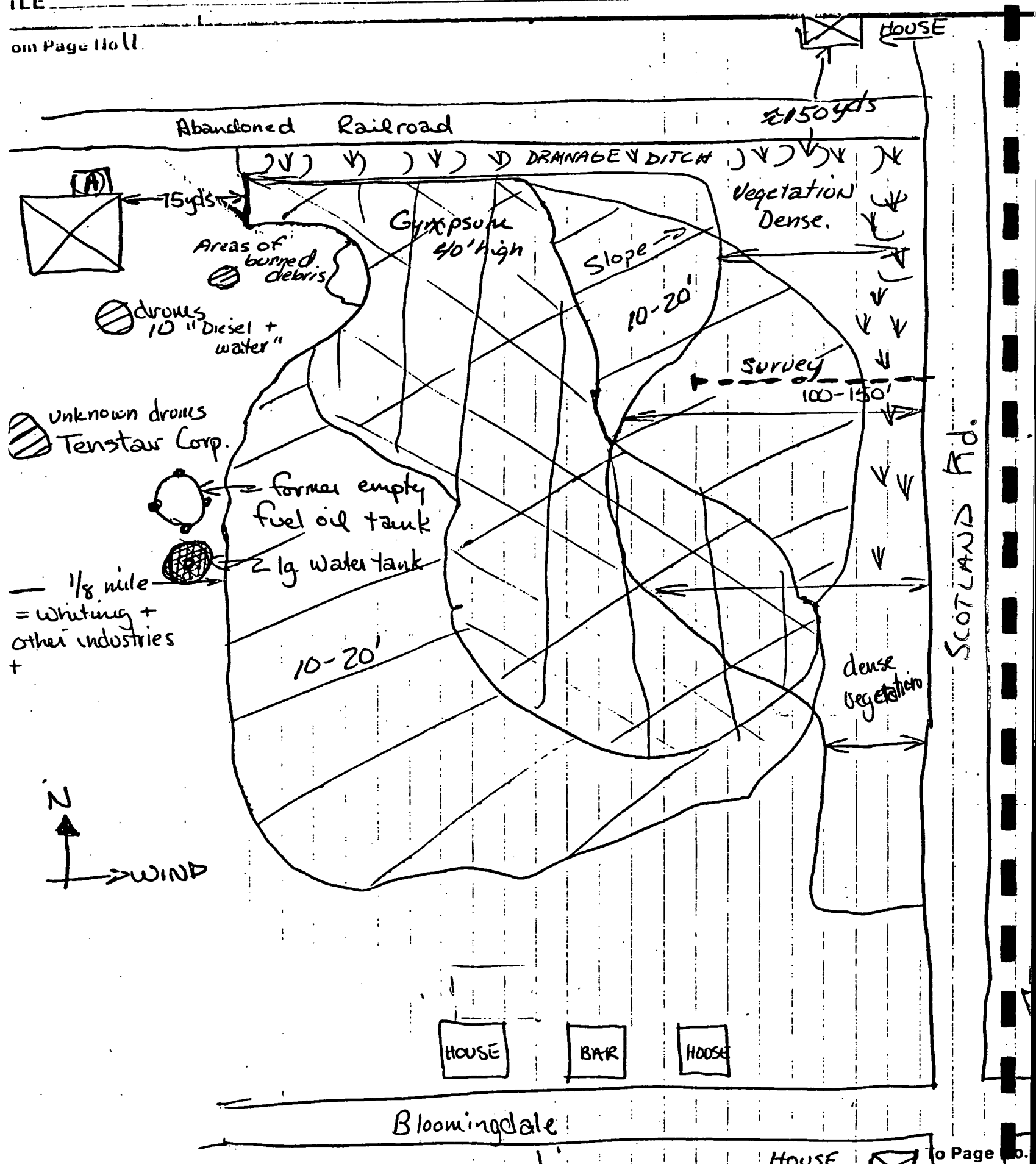
C. Mark Sienkiewicz
7-16-87

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by	

ILE _____ Book No. _____

om Page No 11



To Page No.

Witnessed & Understood by me,	Date 5-63	Invented by	Date
		Recorded by	7-10-87

REFERENCE NO. 8

CONTACT REPORT

TO	:	FRED MCKOSKY
FROM	:	A. MARK SIENKIEWICZ
DATE	:	8/21/87
RE	:	WHITING DEVELOPMENT SITE #915027
CONTACT	:	MR. DAVE DIORIO
ADDRESS	:	7070 SCOTLAND ROAD, AKRON, NY 14004

I talked with Mr. Dave Diorio, a resident who resides on Scotland Road just north of the Whiting Development site, concerning his water supply. The residence is supplied by well water from 2 wells located on the property. He has resided at the location for three years.

Mr. Diorio conveyed that the original well used was abandoned due to unsuitable water. He was not sure who tested the water.

The second well which is now used has hard water due to iron.

* Owner of 7070 Scotland Road was contacted for verification of this information.

db

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

February 9, 1989

Mr. George Hyder
16 Kibler Ave.
Akron, NY 14001

Dear Mr. Hyder:

On February 8, 1989, I contacted you for the purpose of gathering information in support of a Phase 1 investigation for the New York State Department of Environmental Conservation (NYSDEC), see attached contact report.

Since the NYSDEC requires that all references for their reports be fully documented, I would like to request that you review the report and sign it to indicated you agree with its contents.

Please make any corrections or revisions necessary for accuracy and return a signed copy to me as soon as conveniently possible.

If you have any questions regarding the above, please contact me at (716) 684-8060.

Thank you for your time and assistance.

Sincerely,

Dennis Sutton

DS/wj

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CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

CLIENT: Owner of 7070 Scotland Avenue, Akron

ADDRESS: Akron

CONTACT: George Hyder George A. Hyder

PHONE NO.: 542-2227

FROM: D. Sutton

TO: P. Farrell

DATE: 2/8/89

SUMMARY: Groundwater Usage, Whiting Development Site

Mr. Hyder owns the property listed at 7070 Scotland Road. He resides at 16 Kibler Ave. in the Village of Akron (information from assessors office). He has informed me that there is a well on the Scotland Road property and it is used as a drinking water sources.

wj/XA602

CONTACT REPORT

Telephone (X) Meeting ( ) Other ( )

AGENCY: Owner of 7070 Scotland Ave.

ADDRESS: Akron, NY

PHONE NO.: 542-2227

PERSON CONTACTED: Mr. George Hyder

TO: P. Farrell

FROM: D. Sutton

DATE: 2/22/89

SUBJECT: Whiting Development Site

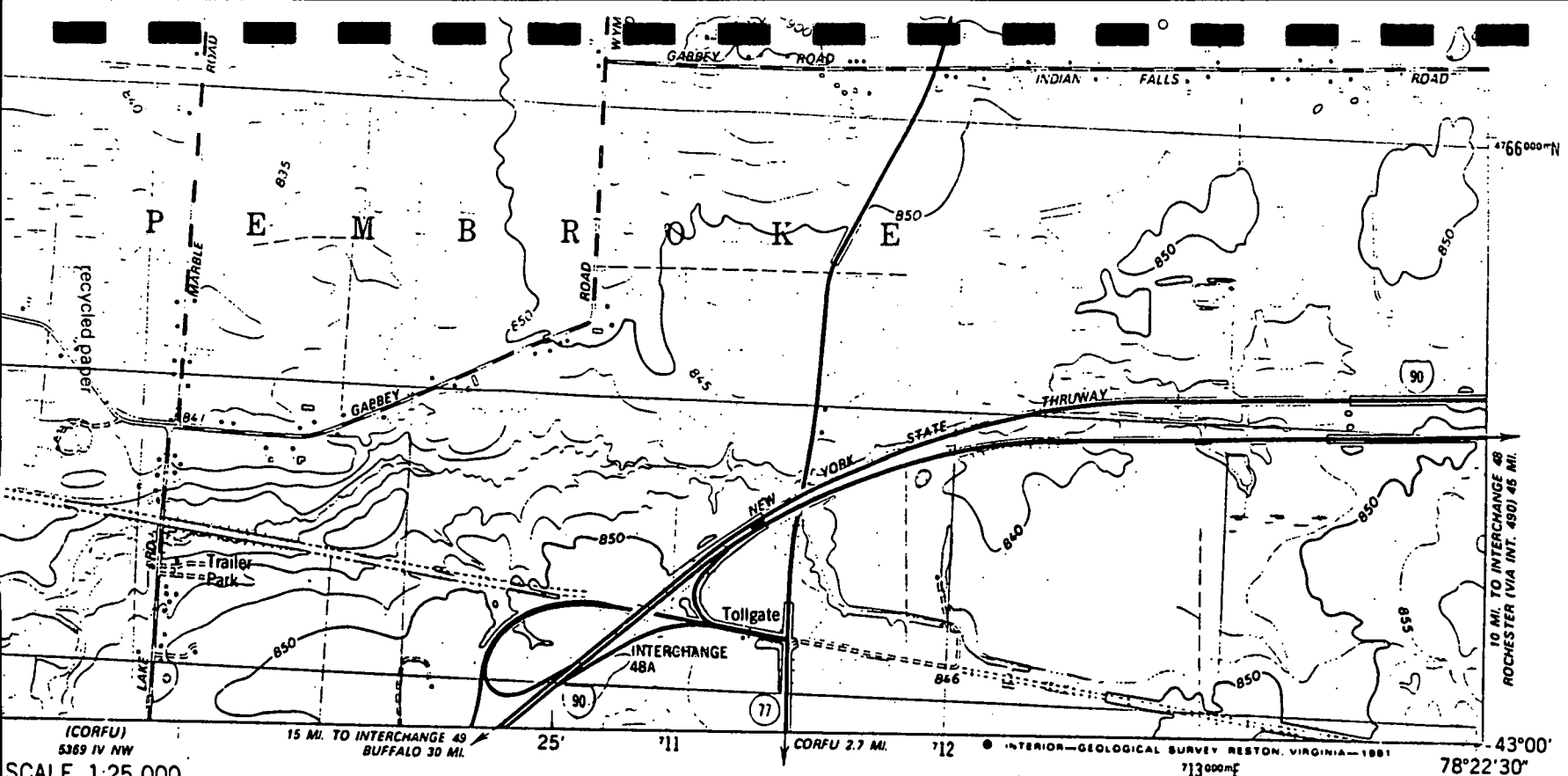
CC: ND2000 (file)

Mr. Hyder was able to give me additional information concerning the former disposal area on the Whiting property. He stated that run off from the former disposal area enters a drainage ditch that runs across the front of his property at 7070 Scotland Ave. This discharge may have a starch base and is slimy, black, odoriferous and has tended to clog the drainage ditch.

Mr. Hyder also said that he formerly worked at the wall board plant and remembers occasionally when the wallboard waste was used to locally fill at least 1 gravel pit and quarry.

In a related matter, Mr. Hyder stated that on the western end of the Whiting property, clear water flows from a former gypsum mining area. He stated that if ~~this~~ faucet in his property at 7070 Scotland Ave., which is supplied by groundwater, has a leaky gasket then lime deposits will build up on the fixture.

George A. Hyder



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SCALE 1:25 000

0 1 MILE

000 3000 4000 5000 6000 7000 FEET

0 1 KILOMETER

TOUR INTERVAL 10 FEET
ES REPRESENT 5-FOOT CONTOURS
EODETIC VERTICAL DATUM OF 1929

TH NATIONAL MAP ACCURACY STANDARDS
LOGICAL SURVEY, RESTON, VIRGINIA 22092
PHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ecological environment 5-70

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

Interstate Route U. S. Route State Route

AKRON, N. Y.

SW/4 MEDINA 15' QUADRANGLE
N4300—W7822.5/7.5

1981

DMA 5370 III SW—SERIES V821

INTERVIEW ACKNOWLEDGEMENT FORM

SITE NAME	: WHITING DEVELOPMENT	I.D. NUMBER	: 915027
PERSON CONTACTED	: MR. ANDRZAJ KLAPA	DATE	: 8/24/87
AFFILIATION	: RESIDENT	PHONE NUMBER	: (716) 542-3124
ADDRESS	: 7029 SCOTLAND ROAD	CONTACT PERSON(S)	: A. MARK SIENKIEWIC
TYPE OF CONTACT	: TELEPHONE CONVERSATION		

INTERVIEW SUMMARY

Mr. Klapa resides at 7029 Scotland, which is supplied by well water. The well is located in the front yard and was recently drilled. The well depth is 39 feet and in the spring or during rainy periods, the well water rises to the ground surface.

The cold water is of good quality, but the hot water has a sulfur odor.

ACKNOWLEDGEMENT

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to Ecology and Environment, Inc. interviewer(s) (as revised below, if necessary).

Revisions (please write in any corrections needed to above transcript)

Signature: Date:

ANDRZEJ KLAPA

Andrej Klapa

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 9, 1989

Mrs. Jane Vaughn
Deputy Town Clerk
57 John Street
Newstead, NY 14001

Dear Mrs. Vaughn:

On August 19, 1987 you were contacted by Mark Sienkiewicz of Ecology and Environment, Inc., (E & E) for the purpose of gathering information in support of a Phase 1 investigation for the New York State Department of Environmental Conservation (NYSDEC), see attached contact report.

Since the NYSDEC requires that all references for their reports be fully documented, I would like to request that you review the report and sign it to indicate you agree with its contents.

I would also like to request that, if possible, you indicate the dates that the previous owners held the property.

Please make any corrections or revisions necessary for accuracy and return a signed copy to me as soon as conveniently possible.

If you have any questions regarding the above, please contact me at (716) 684-8060, Ext. 2250.

Thank you very much for your time and assistance.

Sincerely,

Dennis Sutton

oio/XA602

See attached.
Spoke with Mr. Sutton 1-18-89.

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recycled paper

CONTACT REPORT

TELEPHONE: (X) MEETING: ( ) OTHER:

CONTACT : Mrs. Jane Vaughn,
Deputy Town Clerk

AGENCY : Town of Newstead

PHONE NO.: (716) 542-4573

DATE : August 19, 1987

RE : Whiting Development Corp.: Water Supplies and Ownership History

PERSON CONTACTED: A. Mark Sienkiewicz

1. Town water supply lines runs along Bloomingdale Road and serves most residents on that road. Scotland Road has no supplied water. ok JC

2. Previous owners to Whiting Development (in consecutive order):

   Best Wall Company
   Certain Teed Company
   Georgia Pacific (most recent)

recycled paper

ecology and environment

Town of Newstead

Church & John St.
Akron, N. Y. 14001

P. O. Box 227
Phone (716) 542-4573

SUPERVISOR
DAVID L. CUMMINGS

COUNCILMEN
HAROLD R. JOHNSON
GERALD F. SUMME
THOMAS C. COWAN
EDWARD E. INGALSBE

TOWN CLERK - REGISTRAR
TAX COLLECTOR
CAROLE D. BORCHERT

DEPUTY TOWN CLERK
MARY JANE VAUGHN

HIGHWAY SUPERINTENDENT
GARY L. FOGAL

CODE ENFORCEMENT OFFICER
ASSESSOR-BUILDING INSPECTOR
DONNAL D. FOLGER

TOWN ATTORNEY
EDWARD A. MATTIOLI

HISTORIAN
DOROTHY WEBSTER

Ecology & Environment, Inc.
368 Pleasantview Drive
Lancaster, N.Y. 14086

January 18, 1989

Attn: Dennis Sutton

Re: Whiting Development Corp.

As per your request from our old records the chain of ownership for the above property is as follows.

7-30-40 to 12-11-41 Various owners to Certain Teed Products.

8-22-56 Certain Teed Products to Bestwall Gypsum Co.

7-12-66 Bestwall Gypsum Co. to Georgia Pacific.

8-25-75 Georgia Pacific to Whiting Realty Corp.

11-12-75 Whiting Realty Corp. to Donald J. & Lauren Whiting.

1-22-81 9.54 acres Donald J. & Lauren Whiting to Erie County Industrial Development Agency.

Very Truly Yours,

Donnal D. Folger
Assessor

REFERENCE NO. 12

CONTACT REPORT

AGENCY:	NYSDEC Region 9 Fresh and Wildlife Habitats
ADDRESS:	60 Delaware Ave., Buffalo, New York 14202
TELEPHONE:	847-4550
PERSON CONTACTED:	Jim Farquar
TO:	F. Mc Kosky
FROM:	P. Gunther
DATE:	8/26/87
SUBJECT:	Wetlands in Erie Co., Significant Habitats, & Floodplains for DEC Phase 1 Investigations
xc:	M. Sienkiewicz, G. Florentino, J. Sundquist, P. Farrell, NDDOD

Jim Farquar has provided us with state and federal wetland maps along with wetland descriptions for wetlands that are closest to each site. Attached is a list of sites and the wetlands that are closest to the site. Using the site assignments we settled on at the Erie Co. group meeting on 8/25/87; I have enclosed for each project member the state wetlands that he/she will need. Use the wetland information for the following:

1) Wetland Classification
2) Wetland Size
3) Wetland Cover Type (swamp, meadow, etc.)
4) Look for endangered, threatened, or rare species.
5) Determine if there is anything special about the wetland (i.e. it no longer exists, it has an extensive management plan, it is considered a significant habitat, etc.)
6) Wetland Common Name

Enclose wetland information for documentation.
Also attached are soil sheets for some sites. These should be kept in with file documentation.

Federal wetland maps are also attached. State wetlands are 12.4 acres or more in size, while federal wetlands may be as small as 0.5 acre. Each federal wetland has a code that describes the wetland type. Use the attached wetland legend sheets to determine the Federal wetland type (i.e. PFOIE is a palustrine, forested, fresh water, alkaline, seasonally saturated wetland). Note that several sites are on or very close to federal wetlands.

Also attached are significant habitats for Erie Co. and a description for each site. It'll be necessary to obtain a full scale quad sheet for your hazardous waste site, plot the closest significant habitats using the enclosed map, and determine if there is a significant habitat within 3 miles. Enclosed is a short description for each significant habitat and its common name.

The sites within a 100 year floodplan are:

1) Snyder tank Republic steel - borderline
2) Springville

All other sites are <u>not</u> in the 100 year floodplan.

10. Eighteen Mile Creek - Towns of Evans and Hamburg. This scenic gorge area between Old Lake Shore Boulevard and Lake Erie has remained essentially undisturbed from human and commercial development. The only indiscriminate use is by fishermen. The land is protected by a restrictive clause in the deed to prevent any commercial development. The area has lush growth of ferns, and large Eastern Cottonwoods dominate the gorge. Eighteen Mile Creek diffuses into several channels at this delta. Large scale human use and/or pollutants could have a devastating effect on this pristine lakeshore habitat due to its close proximity to Metropolitan Buffalo. Details of the area can be found in the fishing rights acquisition file located in the Olean office.

11. Counterfeiters Ledge - Town of Newstead. This 27 acre area also extends into the County of Genesee. This area is similar to the Onondaga Limestone Escarpment. Calciphilic plants occur here. Wood cutting and residential development represent the only major threats to this area.

Turkey Vulture nest - unconfirmed

12. Newstead Sink - Town of Newstead. The area (200 acres±) is in two parcels located on either side of the New York State Thruway. The Spring flooding provides a stopover for several thousand ducks, geese and swans. It is probably the most highly used waterfowl area in Erie County. The area provides nesting habitat for some resident waterfowl. The most important threat is due to agricultural drainage and encroachment.

E. Niagara County:

Niagara Gorge (Hydroelectric Gull Concentration Area) Town of Lewiston, Town of Niagara on the Lake. This is one of the largest Gull concentration (10,000+) areas in the Region. They are attracted by the "chumming" of small fish at the hydroelectric plants. The rocky, nearly vertical walls are quite safe from disturbance, except a potential threat exists from additional expansion of power projects by the U.S. or Canada.

F. Wyoming County:

Beaver Meadows Nature Sanctuary - Town of Java. This 226 acre diverse, ecological area is owned by the Buffalo Audubon Society. The area is used as an outdoor laboratory and educational center. The area is unique in providing several diverse communities in close proximity to each other.

WETLANDS IN ERIE CO. NEAR DEC PHASE 1 SITES

Sites	Wetlands
Springville	AH-1, SP-11
Dupont	BW-6, BW-2
FMC	BW-6, BW-2
Whiting	AK-14, AK-7
HiView	BU-13
Clarence	CL-5, CL-2, CL-1, CL-11
Gutenkist	HP-15
Bern	BU-1, BU-15
Tift	BU-1, BU-15, BU-7
Republic	BU-1, BU-15, BU-7
Buf-Hop	BU-1, BU-7, BU-15
C. Auto	BU-1, BU-7, BU-15, BU-14
LSB	BU-14, BU-4
Snyder	BU-14, BU-4
Eden	ED-4, ED-7, ED-5, ED-11, ED-13
J. Fox	AN-5
Schreider	HB-12

REFERENCE NO. 13

New York State Atlas of Community Water System Sources

1982

NEW YORK STATE
DEPARTMENT OF HEALTH

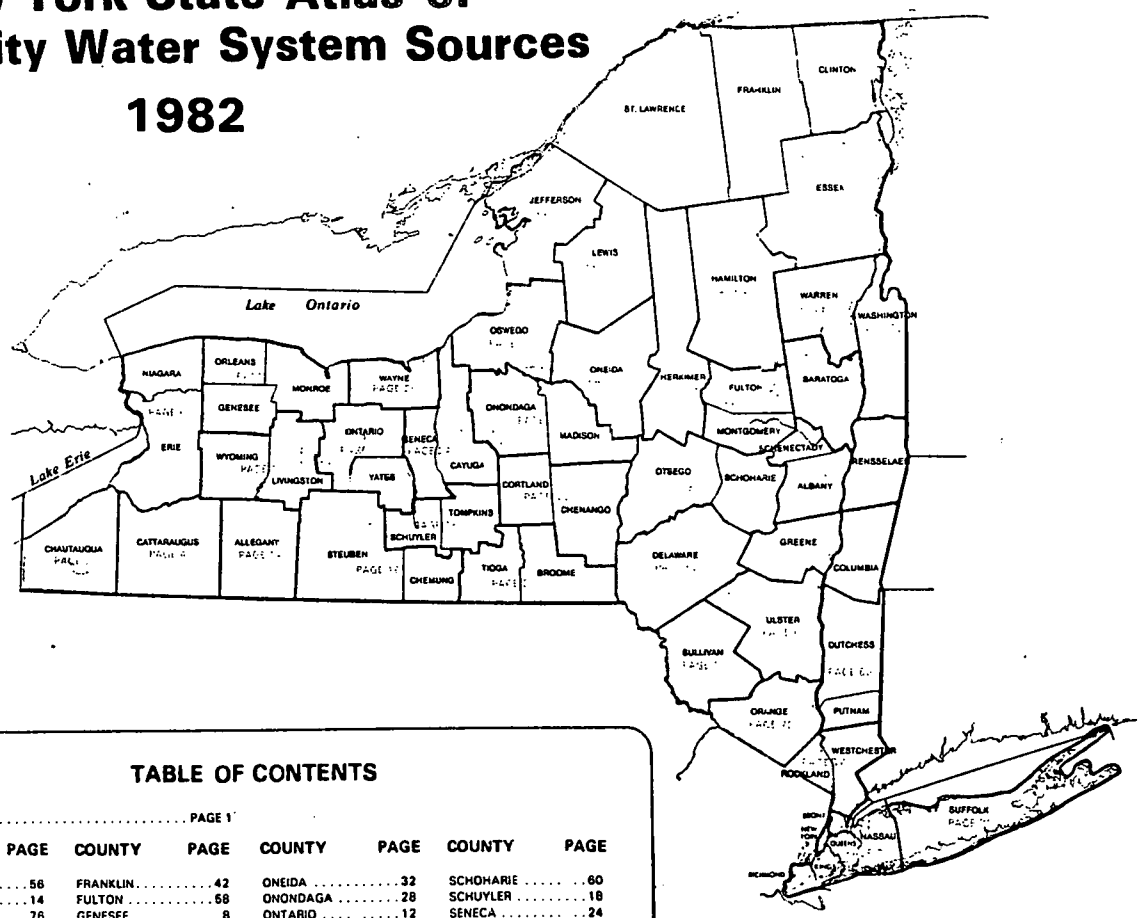

TABLE OF CONTENTS

LEGEND

BOUNDARIES AND PLACES

International
State
County
Town
Indian Reservation
City
Village
Unincorporated Place
Federal Reservation
Built-up Area (Over 25,000 population including any contiguous city or village)

CLASSIFICATION OF POPULATED PLACES

100,000 or more — YONKERS
50,000 to 100,000 — Levittown
12,500 to 50,000 — Poughkeepsie
2,500 to 12,500 — Hampton Bays
250 to 2,500 — Boicevile
250 or less — Lorber

TRANSPORTATION

Highways
Divided Highways
Full Control of Access
Partial or No Control of Access
Undivided Highway
Interchange
Touring Route (State, U.S., Interstate) or State Parkway
Touring Route Markers
State; U.S.; Interstate

Railroads
Operating Line
Service Discontinued
Operator — DELAWARE AND HUDSON
Owner (If Other than Operator) — (PENN CENTRAL)
Company Having Trackage Rights — (CONRAIL)

Airports (Open to the Public, Military)
Runway under 4000'
Runway over 4000'

Rest Areas
Food, Gas, Rest Rooms
Rest Rooms
Gas, Rest Rooms
Parking Only

RECREATION FACILITIES

State or National Recreation Area
State Campground
State Boat Launching Site
State Canal Park
State Fish Hatchery
Other State Recreation Site

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ERIE COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
	Akron Village (See No 1 Wyoming Co, Page 10).	3640	
1	Alden Village.	3460.	Wells
2	Angola Village.	8500.	Lake Erie
3	Buffalo City Division of Water.	357870.	Lake Erie
4	Caffee Water Company.	210.	Wells
5	Collins Water District #3.	704.	Wells
6	Collins Water Districts #1 and #2.	1384.	Wells
7	Erie County Water Authority (Sturgeon Point Intake).	375000.	Lake Erie
8	Erie County Water Authority (Van DeWater Intake).	NA.	Niagara River - East Branch
9	Grand Island Water District #2.	9390.	Niagara River
10	Holland Water District.	1670.	Wells
11	Lawtons Water Company.	138.	Wells
12	Lockport City (Niagara Co).		Niagara River - East Branch
13	Niagara County Water District (Niagara Co).		Niagara River - West Branch
14	Niagara Falls City (Niagara Co).		Niagara River - West Branch
15	North Collins Village.	1500.	Wells
16	North Tonawanda City (Niagara Co).		Niagara River - West Branch
17	Orchard Park Village.	3671.	Pipe Creek Reservoir
18	Springville Village.	4169.	Wells
19	Tonawanda City.	18538.	Niagara River - East Branch
20	Tonawanda Water District #1.	91269.	Niagara River
21	Wanakah Water Company.	10750.	Lake Erie
Non-Municipal Community			
22	Aurora Mobile Park.	125.	Wells
23	Bush Gardens Mobile Home Park.	270.	Wells
24	Circle B Trailer Court.	50.	Wells
25	Circle Court Mobile Park.	125.	Wells
26	Creekside Mobile Home Park.	120.	Wells
27	Donnelly's Mobile Home Court.	99.	Wells
28	Gowanda State Hospital.	NA.	Clear Lake
29	Hillside Estates.	160.	Wells
30	Hunters Creek Mobile Home Park.	150.	Wells
31	Knox Apartments.	NA.	Wells
32	Maple Grove Trailer Court.	72.	Wells
33	Millgrove Mobile Park.	100.	Wells
34	Perkins Trailer Park.	75.	Wells
35	Quarry Hill Estates.	400.	Wells
36	Springville Mobile Park.	114.	Wells
37	Springwood Mobile Village.	132.	Wells
38	Taylors Grove Trailer Park.	39.	Wells
39	Valley View Mobile Court.	42.	Wells
40	Villager Apartments.	NA.	Wells

NIAGARA COUNTY

ID NO	COMMUNITY WATER SYSTEM
Municipal Community	
	Lockport City (See No 12,
1	Middleport Village.
	Niagara County Water Distr (See No 13, Erie Co).
2	Niagara Falls City (See al Erie Co).
	North Tonawanda City (See Erie Co).
Non-Municipal Community	
3	Country Estates Mobile Vil

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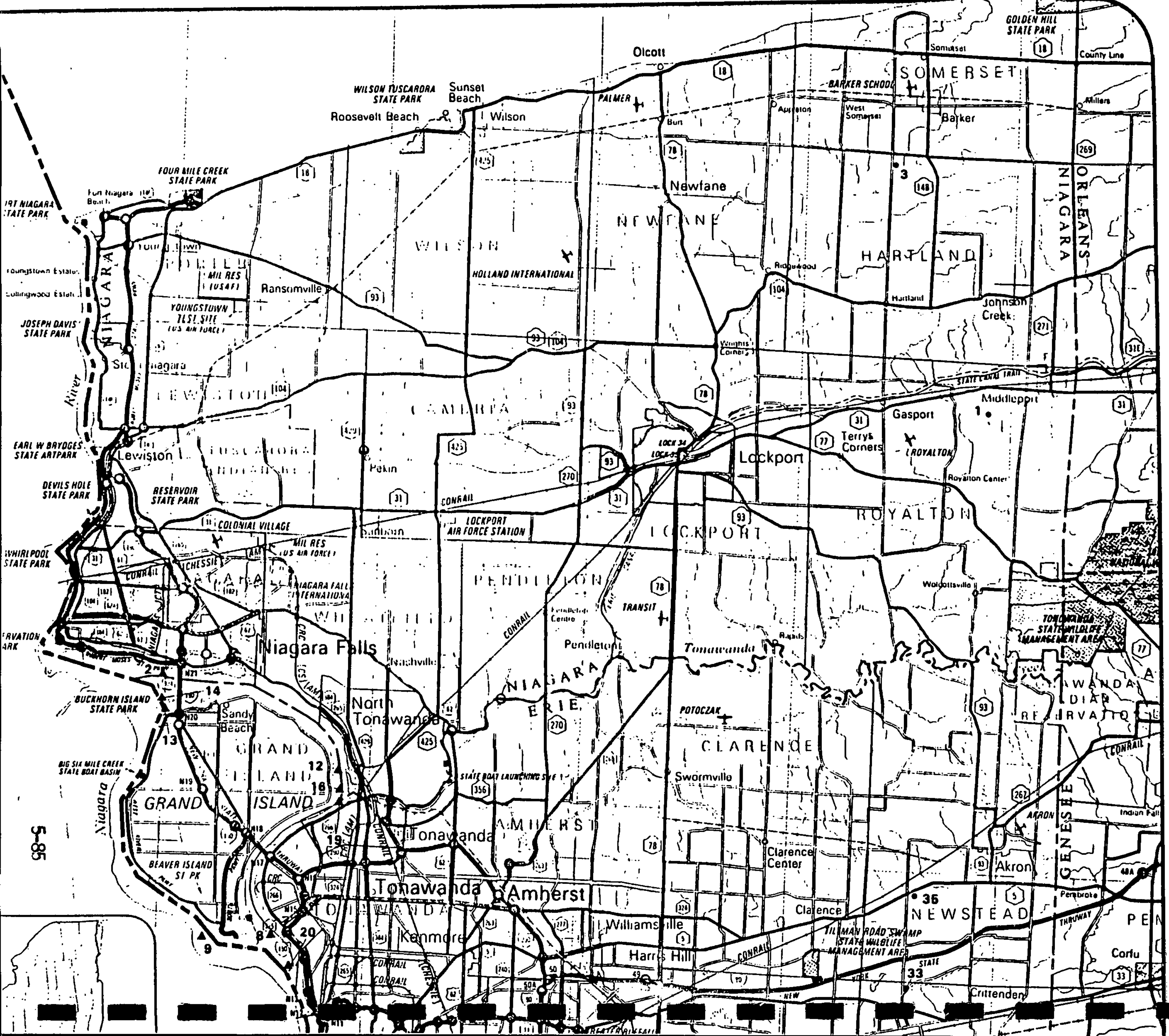
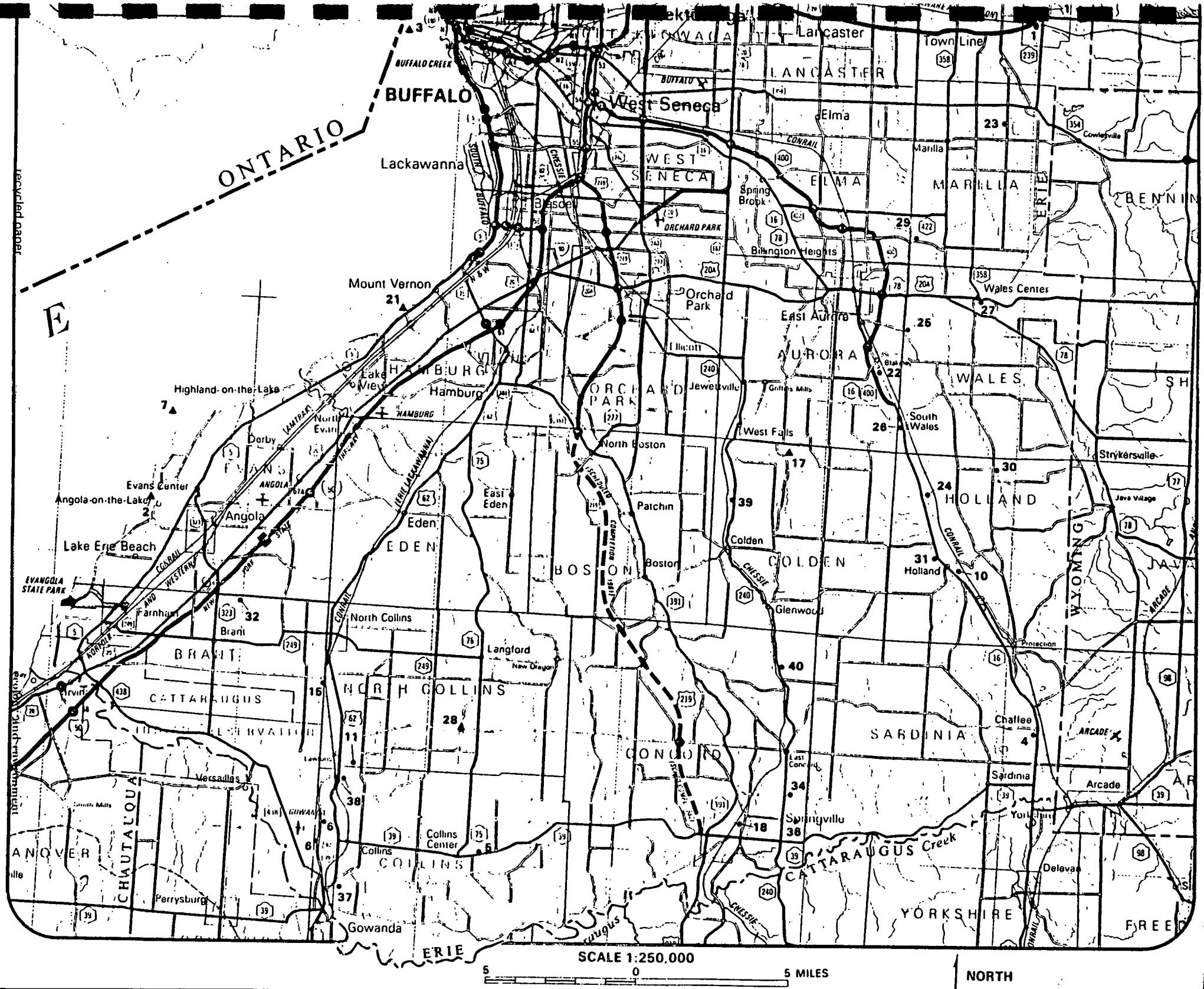


Olcott
Sunset Beach
Wilson
Roosevelt Beach
WILSON TUSCARORA STATE PARK
GOLDEN HILL STATE PARK
Somerset
SOMERSET
BARKER SCHOOL
Barker
County Line
West Somerset
Appleton
PALMER
Burt
Newfane
NEWFANE
HARTLAND
Hartland
Ridgewood
Johnson Creek
NIAGARA
ORLEANS
FOUR MILE CREEK STATE PARK
Fort Niagara Beach
WILSON
HOLLAND INTERNATIONAL
Ransomville
YOUNGSTOWN TEST SITE
JOSEPH DAVIS STATE PARK
Wrights Corners
STATE CANAL TRAIL
Middleport
Gasport
Terrys Corners
LOCK 34
Lockport
ROYALTON
Royalton Center
LEWISTON
CAMBRIA
TUSCARORA
Lewiston
Pekin
EARL W BRYDGES STATE ARTPARK
DEVILS HOLE STATE PARK
RESERVOIR STATE PARK
COLONIAL VILLAGE
LOCKPORT AIR FORCE STATION
CONRAIL
LOCKPORT
WHIRLPOOL STATE PARK
MIL RES (US AIR FORCE)
NIAGARA FALLS INTERNATIONAL
PENDLETON
TRANSIT
Wolcottsville
TONAWANDA STATE WILDLIFE MANAGEMENT AREA
Pendleton
Tonawanda
Niagara Falls
Nashville
BUCKHORN ISLAND STATE PARK
Sandy Beach
North Tonawanda
NIAGARA
ERIE
POTOCZAK
CLARENCE
GRAND ISLAND
BIG SIX MILE CREEK STATE BOAT BASIN
STATE BOAT LAUNCHING SITE
Swormville
GRAND ISLAND
Tonawanda
AMHERST
Clarence Center
Akron
GENESEE
BEAVER ISLAND ST PK
THRUWAY
Tonawanda
Amherst
Clarence
NEWSTEAD
Pembroke
TONAWANDA
Kenmore
Williamsville
TILLMAN ROAD SWAMP STATE WILDLIFE MANAGEMENT AREA
Corfu
Harris Hill
STATE
Crittenden
Niagara River


BUFFALO
ONTARIO
Lackawanna
West Seneca
Lancaster
Town Line
Elma
Marilla
Cowlesville
Blasdell
Orchard Park
Spring Brook
Billington Heights
Mount Vernon
Wales Center
East Aurora
Elicott
Jewettville
Griffins Mills
South Wales
West Falls
North Boston
Strykersville
Java Village
Highland-on-the-Lake
Lake View
Hamburg
Derby
North Evans
Evans Center
Angola-on-the-Lake
Angola
Eden
East Eden
Patchin
Colden
Boston
Holland
Glenwood
Lake Erie Beach
EVANGOLA STATE PARK
Farnham
Brant
North Collins
Langford
New Oregon
Irving
Versailles
Perrysburg
Gowanda
Collins Center
Collins
Chaffee
Sardinia
Arcade
Springville
Delevan
Cattaraugus Creek
LANCASTER
WEST SENECA
ELMA
MARILLA
ORCHARD PARK
AURORA
WALES
HOLLAND
EVANS
BOSTON
EDEN
COLDEN
BRANT
NORTH COLLINS
CONCORD
SARDINIA
CHAUTAUQUA
YORKSHIRE
FREEDOM
ERIE
SCALE 1:250,000
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NORTH

REFERENCE NO. 14

TD
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195

Erie-Niagara Basin

Ground-Water Resources

ERIE-NIAGARA BASIN REGIONAL WATER RESOURCES PLANNING BOARD

Recycled paper

5-88

THE NEW YORK STATE WATER RESOURCES COMMISSION

CONSERVATION DEPARTMENT • DIVISION OF WATER RESOURCES

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK

Prepared for the
Erie-Niagara Basin Regional Water Resources
Planning Board

by

A. M. La Sala, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

in cooperation with

THE NEW YORK STATE CONSERVATION DEPARTMENT
DIVISION OF WATER RESOURCES

STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

5-89
Basin Planning Report ENB-3

1968

GEOLOGY AND TOPOGRAPHY

The Erie-Niagara basin is underlain by layers of sedimentary bedrock which are largely covered with unconsolidated deposits. Descriptions of the various bedrock units are given in figure 2. The bedrock consists mainly of shale, limestone, and dolomite; the Camillus Shale contains a large amount of interbedded gypsum. All the bedrock units were built up by fine-grained sediments deposited in ancient seas during the Silurian and Devonian Periods and, therefore, are bedded or layered. The dip of the rocks (inclination of the bedding planes) is gently southward at from 20 to 60 feet per mile, but the average dip is between 30 and 40 feet per mile. The dip is so gentle that it is hardly perceptible in outcrops.

The unconsolidated deposits are mostly glacial deposits formed during Pleistocene time about 10,000-15,000 years ago when an ice sheet covered the area. The glacial deposits consist of: (1) till, which is a nonsorted mixture of clay, silt, sand, and stones deposited directly from the ice sheet; (2) lake deposits, which are bedded clay, silt, and sand that settled out in lakes fed by the melting ice; and (3) sand and gravel deposits, which were laid down in glacial streams. The glacial sand and gravel deposits are of both the ice-contact and outwash types, as will be explained later in the report. The glacial deposits generally are less than 50 feet thick in the northern part of the basin. They are considerably thicker in some valleys in the southern part and reach a maximum known thickness of 600 feet near Chaffee. Other unconsolidated deposits are alluvium formed by streams in Recent times and swamp deposits formed by accumulation of decayed plant matter in poorly drained areas.

Relief of the present land surface is due to preglacial erosion of the bedrock and subsequent topographic modification by glaciation. In contrast to the southward dip of the rocks, the land surface rises to the south largely because preglacial erosion was more vigorous in the northern part of the basin. The shale in the southern part of the basin is somewhat more resistant to erosion than the rocks in the northern part of the basin but not significantly so. Figure 3 shows the relationship of the topography and rock structure and delineates the two topographic provinces of the basin: the Erie-Ontario Lowlands and the Appalachian Uplands. The rocks crop out in belts which trend generally east-west. The bedrock geologic map, plate 2, shows that the outcrop belts bend around to the southwest near Lake Erie. They assume this direction mainly because relatively intense erosion in the Erie-Ontario Lowland near Lake Erie has exposed the rock at lower elevations than farther east. The Lockport Dolomite and the Onondaga Limestone, because they are relatively resistant to erosion, form low ridges in the northern part of the basin. Tonawanda, Murder, and Ellicott Creeks descend the escarpment of the Onondaga at falls and cataracts.

In the hilly southern half of the basin (the Appalachian Uplands), preglacial valleys, deepened by glacial erosion, are cut into the shale. The valleys are partly filled with glacial deposits so that some of the present streams flow 200 to 600 feet above the bedrock floors of the valleys as shown in figure 3.

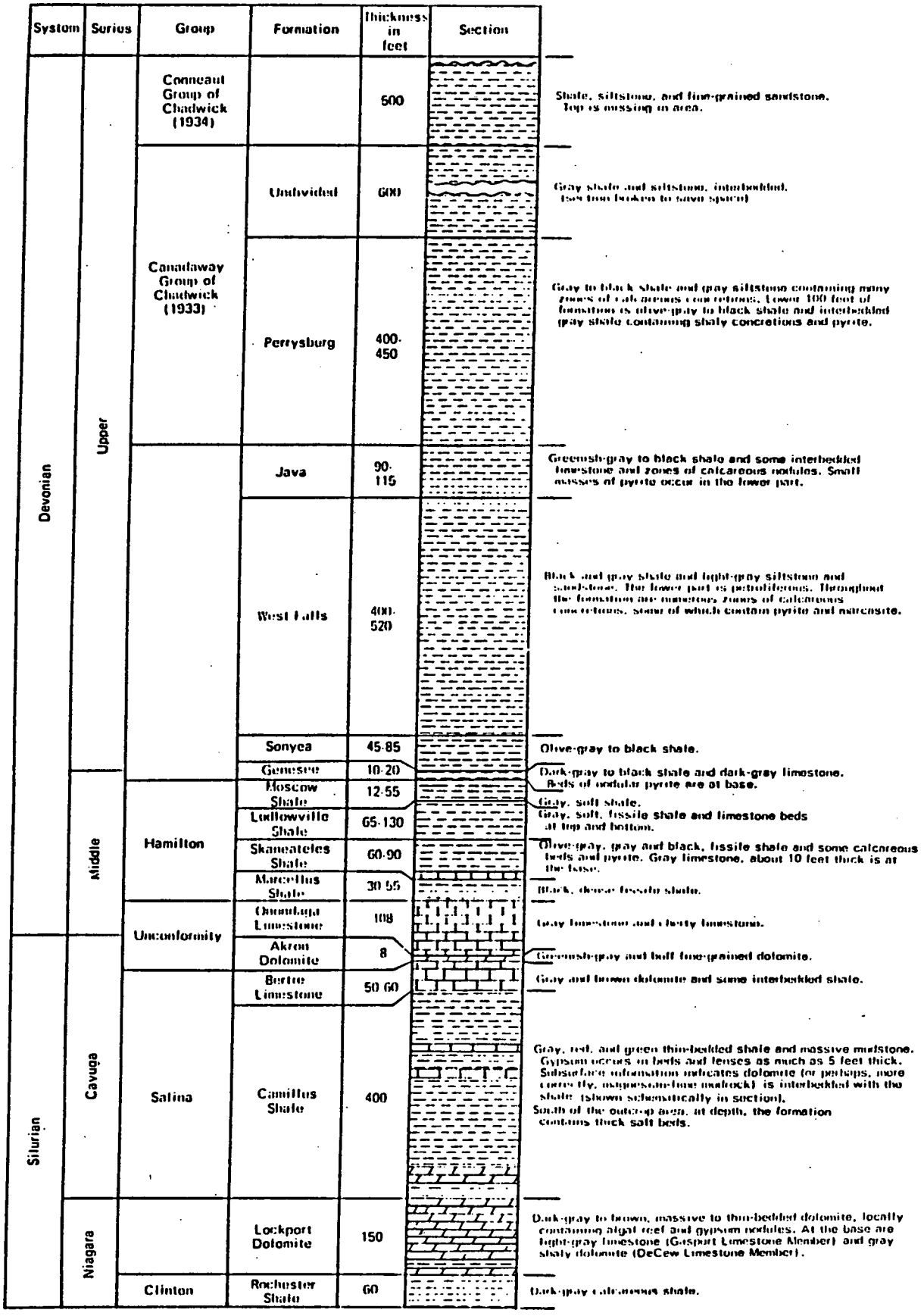

Figure 2.--Bedrock units of the Erie-Niagara basin.

REFERENCE NO. 15

CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

CLIENT: USDA Soil Conservation Service

ADDRESS: 21 South Grove Road
East Aurora

CONTACT: Mr. John Whitney

PHONE NO.: 652-8480

FROM: D. Sutton

TO: P. Farrell

DATE: 1/10/89

CC:

SUMMARY: Whiting Development, NYSDEC Phase 1

Mr. Whitney stated that he did not believe that any cropland was being irrigated by groundwater with a 3 mile radius of the Whiting site within Erie County.* He did indicate that it was possible that private garden plots were irrigated by groundwater and that the Dande Farms Golf Course was irrigated by groundwater.

wj/XA602

I have discussed this with Frank Newton, County Executive Director of the Agricultural Stabilization and Conservation Service. We looked at the maps and decided there might be some irrigation within a 3 mile radius of the Whiting site.

John Whitney
District Conservationist

*ODELL Farms on Bloomingdale Road may occassionally irrigate.

*GERALD KARCHER on Carney Road might irrigate.

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CONTACT REPORT

AGENCY	:	USDA SOIL CONSERVATION SERVICE (SCS)
ADDRESS	:	21 S. GROVE RD., EAST AURORA, NY
TELEPHONE	:	(716) 652-8480
PERSON CONTACTED	:	JOHN WHITNEY
TO	:	FRED MCKOSKY
FROM	:	PAM GUNTHER
DATE	:	AUGUST 25, 1987
SUBJECT	:	PRIME AGRICULTURAL LANDS THAT HAVE BEEN IN PRODUCTION SINCE 1982 FOR DEC PHASE I INACTIVE HAZARDOUS WASTE SITES OF ERIE CO.
XC	:	M. SIENKIEWICZ, G. FLORENTINO, J. SUNDQUIST, P. FARRELL, FILE ND-2000

John Whitney can provide* aerial photos (slides) for all hazardous waste sites in Erie Co. for the following years: 1938, 1958, 1966, 1978, 1981-1987. They cost $1.00 each with a 2 week turnover time. Payment must be received in advance.

To obtain location on prime agricultural lands that have been in production over the past 5 years we looked at enlarged 1978 aerial photos that are updated annually from farmers that maintain crop records with the Agricultural Stabilization Conservation Service (ASCS). To receive federal subsidies the farmers must be in contact with ASCS. Therefore, the ASCS has a good record of who's growing what and where. Truck farmers do not receive federal subsidies and are excluded from ASCS records. Attached is a list of the distances to each prime agricultural farmland from the inactive hazardous waste site and the soil type that classifies the land as prime. Note that ASCS has fewer soil types classified as prime ag. lands than does the New York State classification system. New York State classifies all ASCS prime ag. lands as prime but also includes more soil types. Note this difference for the Gutenkist site. All other sites will have the same ag. land for both state and ASCS. Note this distance was calculated for up to 2 miles away from the site.

Mr. Whitney has also provided me with a bibleography of ground water resources for Erie County which is attached. I have also ordered the attached USGS reports that were recently published.

		Distance	Soil Type
Buffalo - Hopkins		> 2 miles	-
E.I. Dupont		> 2 miles	-
FMC Corp.		> 2 miles	-
Whiting Development Corp.		0	Collamer silt loam, Ag. land adjacent to site
Republic Steel		> 2 miles	-
Snyder Tank Co.		> 2 miles	Varysburg gravelly loam
Village of Springville		300 ft.	Varysburg gravelly loam
James Fox site		300 ft	Manlius shaly silt loam
Wutenkist	State	1600 ft.	Farnham shaly silt loam
	ASCS	6015 ft.	Blasdell shaly silt loam
Eden Sanitation Services		4950 ft.	Niagara silt loam (note: this land is only 2 acr
George Schreiber		700 ft.	Palmyra gravelly loam
Clarence Ready Mix		1700 ft.	-
Central Auto Wrecking		> 2 miles	Hamlen silt loam
Hill View Terrace		5280 ft.	-
Clift and Hopkins		> 2 miles	-
CSB Warehouse		> 2 miles	-
Cerns Metals		> 2 miles	-

* slides are actually available through the ASCS office not SCS, though we may provide technical assistance in identifying slides needed and in interpretation.

John R. Whitney
District Conservationist

CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

CLIENT: Gerald Karcher Farm

ADDRESS: 13146 Carney Road
Akron, NY 14001

CONTACT: Mrs. Karcher

PHONE NO.: 542-4341

FROM: D. Sutton

TO: P. Farrell

DATE: 1/13/89

SUMMARY: Groundwater Usage

Mrs. Karcher informed me that crops were not irrigated on their farm. She did say that groundwater was used to occasionally water her flower pots [redacted].

L. Karcher

wj/XA602

CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

CLIENT: Alvin Odell Farms

ADDRESS: 13358 Bloomingdale Road
Akron, NY 14001

CONTACT: Mrs. Odell

PHONE NO.: 542-9172

FROM: D. Sutton

TO: P. Farrell

DATE: 1/13/89

SUMMARY: Groundwater Usage

Mrs. Odell informed me that no irrigation at all took place at either of the Odell Farms on Bloomingdale Road and that in fact, there were no wells on the property.

wj/XA602

I agree this information is correct.

Alvin J. Odell Jr.

REFERENCE NO. 16

CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

CLIENT: U.S. Department of Agriculture
Soil Conservation Service

ADDRESS: 166 Washington, Ave.
Batavia, NY 14202

CONTACT: Mr. Art Hanson

PHONE NO.: 343-2362

FROM: D. Sutton

TO: P. Farrell

DATE: 1/11/8

SUMMARY: Whiting Development

Mr. Hanson informed me that he knew of no irrigation of any type that was taking place within a 3 mile radius of Wright Road and Tesnow Road in Genesee County. This intersection is approximately 1 mile northeast of the Whiting Development Corporation site in Erie County.

wj/XA602

Art Hanson

EPA 2070-13

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
NY	915027

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier				
Whiting Development	Bloomingdale Road				
03 City	**04 State**	**05 Zip Code**	**06 County**	**07 County Code**	**08 Cong. Dist.**
Newstead	NY	14001	Erie	029	38

09 Coordinates Latitude	Longitude	10 Type of Ownership (Check one)
43 02 00.N	078 28 40.W	[X] A. Private [ ] B. Federal _____ [ ] C. State [ ] D. County [ ] E. Municipal [ ] F. Other _____ [ ] G. Unknown

III. INSPECTION INFORMATION

01 Date of Inspection	02 Site Status	03 Years of Operation		
7 / 16 / 87 (Month Day Year)	[ ] Active [X] Inactive	circa 1920s (Beginning Year)	1978 (Ending Year)	[ ] Unknown

04 Agency Performing Inspection (Check all that apply)
[ ] A. EPA [ ] B. EPA Contractor _____ (Name of Firm) [ ] C. Municipal [ ] D. Municipal Contractor _____ (Name of Firm)
[ ] E. State [X] F. State Contractor E & E* (Name of Firm) [ ] G. Other _____ (Specify)

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
A. Mark Sienkiewicz	Environmental Specialist	E & E	(716) 684-8060
09 Other Inspectors	10 Title	11 Organization	12 Telephone No.
Gene Florentino	Geologist	E & E	(716) 684-8060
			( )
			( )
			( )
			( )

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Lauren Whiting	Secretary	Akron, New York	(716) 542-5427
			( )
			( )
			( )
			( )

17 Access Gained By (Check one)	18 Time of Inspection	19 Weather Conditions
[X] Permission [ ] Warrant	10:00	Partly sunny, 70°F, 0-10 mph west wind

IV. INFORMATION AVAILABLE FROM

01 Contact	02 Of (Agency/Organization)	03 Telephone No.
Walter E. Demick	New York State Dept. of Env. Conservation	(518) 457-9538

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
M. Farrell		E & E	(716) 684-8060	7 / 16 / 87 (Month Day Year)

recycled paper

ecology and environment

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

[X] A. Solid
[ ] B. Powder, Fines
[ ] C. Sludge
[ ] D. Other _____ (Specify)
[ ] E. Slurry
[ ] F. Liquid
[ ] G. Gas

02 Waste Quantity at Site (Measure of waste quantities must be independent)

Tons _____
Cubic Yards 338,800
No. of Drums _____

03 Waste Characteristics (Check all that apply)

[ ] A. Toxic
[ ] B. Corrosive
[ ] C. Radioactive
[ ] D. Persistent
[ ] E. Soluble
[ ] F. Infectious
[ ] G. Flammable
[ ] H. Ignitable
[ ] I. Highly volatil
[ ] J. Explosive
[ ] K. Reactive
[ ] L. Incompatible
[ ] M. Not applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge			
OLW	Oily waste			
SOL	Solvents			
PSD	Pesticides			
OCC	Other organic chemicals			
IOC	Inorganic chemicals	338,800	cu yds	Gypsum - calcium sulfate
ACD	Acids			
BAS	Bases			
MES	Heavy Metals			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
IOC	Calcium sulfate	10101414	Piles	Unknown	
IOC	Asbestos	1332214	--	Possible only	--

V. FEEDSTOCKS (See Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

ECDEP, 1984, Whiting Development [Site Description]
E & E, 1987, Site Inspection

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State	02 Site Number
NY	915027

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Groundwater Contamination — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected 8 (est.) — 04 Narrative Description:

The potential exists for possible site contaminants to have migrated from the site to the groundwater.

01 [X] B. Surface Water Contamination — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected Unknown — 04 Narrative Description:

The potential exists for surface waters located at the north and east ditches to be contaminated from the site.

01 [X] C. Contamination of Air — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected Unknown — 04 Narrative Description:

The potential exists for onsite contaminants to have migrated off site via windblown dust.

01 [ ] D. Fire/Explosive Conditions — 02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected _____ — 04 Narrative Description:

01 [X] E. Direct Contact — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected _____ — 04 Narrative Description:

There is a potential for residents and workers at the site to come into direct contact with site materials. No access control measures exist.

01 [X] F. Contamination of Soil — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Area Potentially Affected 5-7 (Acres) — 04 Narrative Description:

The potential exists for the contamination of site soils.

01 [X] G. Drinking Water Contamination — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected 8 (est.) — 04 Narrative Description:

The potential exists for site contaminants to have migrated to utilized groundwater.

01 [X] H. Worker Exposure/Injury — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Workers Potentially Affected Unknown — 04 Narrative Description:

The potential exists for worker exposure to possible site contaminants.

01 [X] I. Population Exposure/Injury — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
03 Population Potentially Affected Unknown — 04 Narrative Description:

The potential exists for population exposure/injury.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

01 [X] J. Damage to Flora — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

None observed, but the potential exists

01 [X] K. Damage to Fauna — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

None observed, but the potential exists

01 [ ] L. Contamination of Food Chain — 02 [ ] Observed (Date _____) [X] Potential [ ] Alleged
04 Narrative Description:

01 [X] M. Unstable Containment of Wastes (Spills/Runoff/Standing liquids, Leaking drums) — 02 [x] Observed (Date 7/16/87) [ ] Potential [ ] Alleged
03 Population Potentially Affected unknown
04 Narrative Description:

Steep banks and uncovered waste materials

01 [ ] N. Damage to Offsite Property — 02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

01 [ ] O. Contamination of Sewers, Storm Drains, WWTPs — 02 [ ] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

No storm or sewer drains observed at landfill

01 [X] P. Illegal/Unauthorized Dumping — 02 [X] Observed (Date _____) [ ] Potential [ ] Alleged
04 Narrative Description:

The potential exists at this site for past, as well as present, illegal/unauthorized dumping.

05 Description of Any Other Known, Potential, or Alleged Hazards

III. TOTAL POPULATION POTENTIALLY AFFECTED

Assume 3.8 people per household, 4 houses in immediate vicinity of the site. Therefore, 15.2 people in the immediate vicinity of the Whiting site.

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E, 1987, Site Inspection

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. PERMIT INFORMATION

01 Type of Permit Issued (Check all that apply)	02 Permit Number	03 Date Issued	04 Expiration Date	05 Comments
[ ] A. NPDES				
[ ] B. UIC				
[ ] C. AIR				
[ ] D. RCRA				
[ ] E. RCRA Interim Status				
[ ] F. SPCC Plan				
[ ] G. State (Specify)				
[ ] H. Local (Specify)				
[ ] I. Other (Specify)				
[X] J. None				

III. SITE DESCRIPTION

01 Storage Disposal (Check all that apply)	02 Amount	03 Unit of Measure	04 Treatment (Check all that apply)	05 Other
[ ] A. Surface Impoundment			[ ] A. Incineration	[X] A. Buildings On Site
[X] B. Piles	338,800	cu. yds.	[ ] B. Underground Injection	
[X] C. Drums, Above Ground	10	drums	[ ] C. Chemical/Physical	
[X] D. Tank, Above Ground	(water)		[ ] D. Biological	
[ ] E. Tank, Below Ground			[ ] E. Waste Oil Processing	
[ ] F. Landfill			[ ] F. Solvent Recovery	06 Area of Site
[ ] G. Landfarm			[ ] G. Other Recycling Recovery	
[ ] H. Open Dump			[ ] H. Other (Specify)	7 Acres
[ ] I. Other (Specify)				

07 Comments
Piles of gypsum wastes, scrap, and wood exist on site. Ten drums labeled "Diesel and Water" observed.

IV. CONTAINMENT

01 Containment of Wastes (Check one)
[ ] A. Adequate, Secure [ ] B. Moderate [X] C. Inadequate, Poor [ ] D. Insecure, Unsound, Dangerous

02 Description of Drums, Diking, Liners, Barriers, etc.

No liners noted, no cover over materials.

V. ACCESSIBILITY

01 Waste Easily Accessible: [X] Yes [ ] No
02 Comments:

No access control. Site located near roadway.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E, 1987, Site Inspection

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State	02 Site Number
NY	915027

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (Check as applicable)	Surface	Well
Community	A. [X]	B. [ ]
Non-community	D. [ ]	D. [X]

02 Status	Endangered	Affected	Monitored
Community	A. [ ]	B. [ ]	C. [ ]
Non-community	D. [ ]	E. [ ]	F. [ ]

03 Distance to Site
A. >10 (mi)
B. 0.1 (mi)

III. GROUNDWATER

01 Groundwater Use in Vicinity (Check one)

[X] A. Only Source for Drinking
[ ] B. Drinking (Other sources available) Commercial, Industrial, Irrigation (No other water sources available)
[ ] C. Commercial, Industrial, Irrigation (Limited other sources available)
[ ] D. Not Used, Unuseable

02 Population Served by Groundwater 228 (1 mi)

03 Distance to Nearest Drinking Water well 0.1 (mi)

04 Depth to Groundwater	05 Direction of Groundwater Flow	06 Depth to Aquifer of Concern	07 Potential Yield of Aquifer	08 Sole Source Aquifer
0 (ft)	Unknown	35 (ft)	Unknown (gpd)	[ ] Yes [X] No

09 Description of Wells (Including usage, depth, and location relative to population and buildings)

Three wells located 0.1 mile north and northeast of site. One well was abandoned because of poor quality. The replacement well has hard water (iron). Third well is 39 feet deep and is artesian.

10 Recharge Area		11 Discharge Area	
[ ] Yes	Comments:	[ ] Yes	Comments:
[ ] No	Unknown	[X] No	

IV. SURFACE WATER

01 Surface Water (Check one)

[ ] A. Reservoir, Recreation, Drinking Water Source
[X] B. Irrigation, Economically Important Resources
[ ] C. Commercial, Industrial
[ ] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
Perennial tributary to Ledge Creek	[ ]	0.1 (mi)
Ledge Creek	[ ]	0.75 (mi)
	[ ]	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 Total Population Within

One (1) Mile of Site	Two (2) Miles of Site	Three (3) Miles of Site
A. 380 No. of Persons	B. 4,162 No. of Persons	C. 6,312 No. of Persons

02 Distance to Nearest Population
0.1 (mi)

03 Number of Buildings Within Two (2) Miles of Site
1,473

04 Distance to Nearest Off-Site Building
0.1 (mi)

05 Population Within Vicinity of Site (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Sparse, rural, residential and agricultural

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 State	02 Site Number
NY	915027

VI. ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (Check one)

[ ] A. 10^{-6} - 10^{-8} cm/sec [ ] B. 10^{-4} - 10^{-6} cm/sec [X] C. 10^{-4} - 10^{-3} cm/sec [ ] D. Greater Than 10^{-3} cm/sec

02 Permeability of Bedrock (Check one)

[ ] A. Impermeable (Less than 10^{-6} cm/sec) [ ] B. Relatively Impermeable (10^{-4} - 10^{-6} cm/sec) [X] C. Relatively Permeable (10^{-2} - 10^{-4} cm/sec) [ ] D. Very Permeable (Greater than 10^{-2} cm/sec)

03 Depth to Bedrock	04 Depth of Contaminated Soil Zone	05 Soil pH
25-35 (ft)	unknown (ft)	unknown

06 Net Precipitation	07 One Year 24-Hour Rainfall	08 Slope Site Slope	Direction of Site Slope	Terrain Average Slope
9 (in)	2.1 (in)	20 %	variable	0-3 %

09 Flood Potential

Site is in 500 Year Floodplain

10

[ ] Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway

11 Distance to Wetlands (5 acre minimum)

ESTUARINE	OTHER
A. >2 (mi)	B. 0.4 (mi)

12 Distance to Critical Habitat (of Endangered Species)

>2 (mi)

Endangered Species:

13 Land Use in Vicinity

Distance to:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 0.1 (mi)	B. 1.5 (mi)	C. 0.1 (mi)	D. 0.1 (mi)

14 Description of Site in Relation to Surrounding Topography

The Whiting Development site is located within the Erie-Niagara Basin in the Erie-Ontario Lowlands physiographic province, Town of Newstead, Erie County. The site is a 1,200-foot by 250-foot rectangle oriented north-south and is composed of piles of gypsum up to 30 feet thick. An access road leads into the site which is bordered on the north and east by drainage ditches. Several houses exist near the site on Bloomingdale and Scotland roads.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E, 1987, site inspection.
Klapa, Andrzaj, 1987, personal communication.
Farquar, James, NYSDEC, 1987, personal communication.
USGS, 1981, Akron quadrangle 7.5 topographic map.
FEMA insurance maps.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
NY	915027

II. SAMPLES TAKEN - none

Sample Type	01 Number of Samples Taken	02 Samples Sent to	03 Estimated Date Results Available
Groundwater			
Surface Water			
Waste			
Air			
Runoff			
Spill			
Soil			
Vegetation			
Other			

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
HNu	No organic vapors detected above background levels.

IV. PHOTOGRAPHS AND MAPS

01 Type [X] Ground [ ] Aerial

02 In Custody of E & E
(Name of organization or individual)

03 Maps [X] Yes [ ] No

04 Location of Maps: E & E, Buffalo, New York

V. OTHER FIELD DATA COLLECTED (Provide narrative description of sampling activities)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

LaSala, A.M., 1968, Groundwater Resources in the Erie-Niagara Basin
USDA, SCS, 1986, Soil Survey of Erie County 1986
USGS, 1981, Akron, New York topographical map

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 Name Whiting Development		02 D+B Number		08 Name		09 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.) 113 Cedar Street		04 SIC Code		10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code	
05 City Akron	06 State NY	07 Zip Code 14001		12 City	13 State	14 Zip Code	
01 Name Georgia Pacific		02 D+B Number		08 Name		09 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.) Bloomingdale Road		04 SIC Code		10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code	
05 City Akron	06 State NY	07 Zip Code 14001		12 City	13 State	14 Zip Code	
01 Name Certain Teed		02 D+B Number		08 Name		09 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.) Unknown		04 SIC Code		10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code	
05 City	06 State	07 Zip Code		12 City	13 State	14 Zip Code	
01 Name Best Wall		02 D+B Number		08 Name		09 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.) 369 Old Falls Blvd.		04 SIC Code		10 Street Address (P.O. Box, RFD #, etc.)		11 SIC Code	
05 City North Tonawanda	06 State NY	07 Zip Code 14120		12 City	13 State	14 Zip Code	

III. PREVIOUS OWNER(S) (List most recent first)			IV. REALTY OWNER(S) (If applicable, list most recent first)		
01 Name		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code
01 Name		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code
01 Name		02 D+B Number	01 Name		02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)		04 SIC Code
05 City	06 State	07 Zip Code	05 City	06 State	07 Zip Code

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Vaughn, Jane, Deputy Clerk, Town of Newstead, August 1987

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 State: NY	02 Site Number: 915027

II. CURRENT OPERATOR (Provide if different from owner)			OPERATOR'S PARENT COMPANY (If applicable)		
01 Name: Whiting Development	02 D+B Number		10 Name	11 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.): 113 Cedar Street	04 SIC Code		12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code	
05 City: Akron	06 State: NY	07 Zip Code: 14001	14 City	15 State	16 Zip Code
08 Years of Operation: 9	09 Name of Owner				

III. PREVIOUS OPERATOR(s) (List most recent first; provide only if different from owner)			PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)		
01 Name: Georgia Pacific Co.	02 D+B Number		10 Name	11 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.): Bloomingdale Road	04 SIC Code		12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code	
05 City: Akron	06 State: NY	07 Zip Code: 14001	14 City	15 State	16 Zip Code
08 Years of Operation: approx. 50	09 Name of Owner During This Period: Georgia Pacific Co.,				
01 Name: Certain Teed Co.	02 D+B Number		10 Name	11 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.): Unknown	04 SIC Code		12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code	
05 City	06 State	07 Zip Code	14 City	15 State	16 Zip Code
08 Years of Operation: Unknown	09 Name of Owner During This Period				
01 Name: Best Wall Co.	02 D+B Number		10 Name	11 D+B Number	
03 Street Address (P.O. Box, RFD #, etc.): 369 Old Falls Blvd.	04 SIC Code		12 Street Address (P.O. Box, RFD #, etc.)	13 SIC Code	
05 City: North Tonawanda	06 State: NY	07 Zip Code: 14120	14 City	15 State	16 Zip Code
08 Years of Operation: Unknown	09 Name of Owner During This Period: Best Drywall				

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Vaughn, Jane, Deputy Town Clerk, August 1987, Newstead, New York

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POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. ON-SITE GENERATOR

01 Name	02 D+B Number	
Whiting Development		
03 Street Address (P.O. Box, RFD #, etc.) 113 Cedar Street	04 SIC Code	
05 City Akron	06 State NY	07 Zip Code 14001

III. OFF-SITE GENERATOR(S)

01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code
01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code

IV. TRANSPORTER(S)

01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code
01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City	06 State / 07 Zip Code	05 City	06 State / 07 Zip Code

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Vaughn, Jane, Deputy Town Clerk, August 1987, Town of Newstead

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. PAST RESPONSE ACTIVITIES

01 [ ] A. Water Supply Closed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] B. Temporary Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] C. Permanent Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] D. Spilled Material Removed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] E. Contaminated Soil Removed — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] F. Waste Repackaged — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] G. Waste Disposed Elsewhere — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] H. On Site Burial — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] I. In Situ Chemical Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] J. In Situ Biological Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] K. In Situ Physical Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] L. Encapsulation — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] M. Emergency Waste Treatment — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] N. Cutoff Walls — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] O. Emergency Diking/Surface Water Diversion — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] P. Cutoff Trenches/Sump — 02 Date _____ — 03 Agency _____
04 Description:

01 [ ] Q. Subsurface Cutoff Wall — 02 Date _____ — 03 Agency _____
04 Description:

D17

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. PAST RESPONSE ACTIVITIES (Cont.)

01 [ ] R. Barrier Walls Constructed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] S. Capping/Covering 02 Date _____ 03 Agency _____
04 Description:

01 [ ] T. Bulk Tankage Repaired 02 Date _____ 03 Agency _____
04 Description:

01 [ ] U. Grout Curtain Constructed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] V. Bottom Sealed 02 Date _____ 03 Agency _____
04 Description:

01 [ ] W. Gas Control 02 Date _____ 03 Agency _____
04 Description:

01 [ ] X. Fire Control 02 Date _____ 03 Agency _____
04 Description:

01 [ ] Y. Leachate Treatment 02 Date _____ 03 Agency _____
04 Description:

01 [ ] Z. Area Evacuated 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 1. Access to Site Restricted 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 2. Population Relocated 02 Date _____ 03 Agency _____
04 Description:

01 [ ] 3. Other Remedial Activities 02 Date _____ 03 Agency _____
04 Description:

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 State NY	02 Site Number 915027

II. ENFORCEMENT INFORMATION

01 Past Regulatory/Enforcement Action [ ] Yes [X] No

02 Description of Federal, State, Local Regulatory/Enforcement Action

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

561067

6. ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

After assessing the information gathered for this site and applying it to an HRS worksheet, it was determined that the existing information is not adequate to accurately score the site, and that further investigations are necessary to determine a proper HRS score.

E & E recommends a screening program consisting of several soil samples collected from the surface to a depth of 2 feet on the disposal area, soil samples from the ditch bordering the site, samples of the calcium sulfate waste, and groundwater samples. They should be analyzed for the following parameters:

- Ignitability, corrosivity, reactivity, and EP Toxicity; and
- Asbestos.

Based on these tests it can be determined whether RCRA hazardous wastes are present on site. The characteristics of the waste can also be determined, if present. This information will lead to a more accurate HRS scoring of the site and assist in determining remedial needs, if any.

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7. REFERENCES

Buehler, Edward J. and I.H. Tesmer, 1963, Geology of Erie County, Buffalo Society of Natural Sciences, Vol. 21, No. 3.

Buehler, Edward J., 1966, Geology of Western New York, State University of New York at Buffalo, Buffalo, New York.

DeYoung, Jim, Superintendent Dande Farms Golf Course, August 24, 1987, personal communication, Newstead, New York.

Ecology and Environment, Inc., July 16, 1987, Site Inspection Logbook and Photograph Log, Buffalo, New York.

Entringer, Ronald A., Erie County Department of Environment and Planning, November 27, 1984, memorandum to Donald Campbell (ECDEP), Buffalo, New York.

Erie County Department of Environment and Planning, January 15, 1980, memorandum from Ronald D. Koczaja to J. Tygert, Buffalo, New York.

_____, December 1984a, Whiting Development (Site Description), Buffalo, New York.

_____, December 20, 1984b, letter from Donald Campbell to L. Whiting, Buffalo, New York.

Farquar, James, NYSDEC, August 26, 1987, personal communication, Buffalo, New York.

LaSala, A.M., U.S. Department of the Interior, State of New York Conservation Department, 1968, Groundwater Resources of the Erie-Niagara Basin, Albany, New York.

New York State Department of Environmental Conservation, Region 9, 1987, State Designated Wetland Maps for Erie County, Buffalo, New York.

NUS Corporation, 1986, Preliminary Assessment, Whiting Development Corporation, New Jersey.

United States Department of the Interior, 1976, National Register of Historic Places, Washington, DC.

United States Department of Agriculture, Soil Conservation Service, 1986, Soil Survey of Erie County, 1986.

United States Geological Survey, 1981, Akron, New York, 7.5-Minute Topographical Map.

Sax, N.I., 1979, Dangerous Properties of Industrial Materials, 5th edition, Van Nostrand Reinhold, New York.

Vaughn, Jane, Town of Newstead, August 19, 1987, personal telephone communication, Deputy Town Clerk, Newstead, New York.

Whiting, Lauren C., Whiting Development Corporation, January 9, 1985, letter to Donald Campbell (ECDEP), Akron, New York.

Whitney, John, USDA, SCS, August 25, 1987, personal communication, East Aurora, New York.

APPENDIX A

PHOTOGRAPHIC LOG

ecology and environment, inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC

E & E Job No.: ND-2021

Camera: Make Olympus OM-10

SN: 2387486

Photographer: A.M. Sienkiewicz

Date/Time: 7/16/87 10:15

Lens: Type: 35-70 mm

SN: 301285

Frame No.: 12

Comments*: Waste gypsum material at east end of site.

Photographer: A.M. Sienkiewicz

Date/Time: 7/16/87 10:25

Lens: Type: 35-70 mm

SN: 301285

Frame No.: 13

Comments*: Waste materials and scrap metal at north-west corner. Photo from north, drainage ditch in foreground.

*Comments to include location

D1711

ecology and environment, Inc.

PHOTOGRAPHIC RECORD

Client: NYSDEC

E & E Job No.: ND-2021

Camera: Make Olympus OM-10

SN: 2387486

Photographer: A.M. Sienkiewicz

Date/Time: 7/16/87 10:30

Lens: Type: 35-70 mm

SN: 301285

Frame No.: 14

Comments*: Excavated gypsum material and area where scrap wood is being burned.

Photographer:

Date/Time:

Lens: Type:

SN:

Frame No.:

Comments*:

*Comments to include location

D1711

APPENDIX B

UPDATED NYSDEC INACTIVE HAZARDOUS WASTE DISPOSAL SITE REGISTRY FORM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

Priority Code: 2a Site Code: 915027

Name of Site: Whiting Development Region: 9

Street Address: Bloomingdale Road, Village of Akron

Town/City: Newstead County: Erie

Name of Current Owner of Site: Whiting Development Corporation

Address of Current Owner of Site: 113 Cedar Street, Akron, New York

Type of Site: [X] Open Dump [ ] Structure [ ] Lagoon
[ ] Landfill [ ] Treatment Pond

Estimated Size: 7 acre(s)

Site Description: The site contains over 300,000 cubic yards of waste gypsum spread over 7 acres.

Hazardous Waste Disposed: [ ] Confirmed [X] Suspected

Type and Quantity of Hazardous Wastes Disposed:

Type	Quantity (Pounds, Drums, Tons, Gallons)
Gypsum	>300,000 cubic yards

Time Period Site was Used for Hazardous Waste Disposal:

_____, 1920s To _____, 1978

Owner(s) During Period of Use: Georgia Pacific

Site Operator During Period of Use: Georgia Pacific

Address of Site Operator: 113 Cedar Street, Akron, New York

Analytical Data Available: [ ] Air [ ] Surface Water [ ] Groundwater
[ ] Soil [ ] Sediment [X] None

Contravention of Standards: [ ] Groundwater [ ] Drinking Water
[ ] Surface Water [ ] Air

Soil Type: Minoa Series

Depth to Groundwater Table: Seasonally at surface

Legal Action: Type: None [ ] State [ ] Federal

Status: [ ] In Progress [ ] Completed

Remedial Action: [ ] Proposed [ ] Under Design
[ ] In Progress [ ] Completed

Nature of Action: _____

Assessment of Environmental Problems:

Gypsum ($CaSO_4$) emits hazardous SOx fumes if heated. No environmental threats to soil, groundwater, or surface water are posed by gypsum. It is unknown if other contaminants are present.

Assessment of Health Problems:

None, unless gypsum is heated or other contaminants are present.

Person(s) Completing This Form:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Name: _____
Title: _____
Name: _____
Title: _____
Date: _____

NEW YORK STATE DEPARTMENT OF HEALTH

Name: _____
Title: _____
Name: _____
Title: _____
Date: _____

APPENDIX C

PHOTOCOPIED REFERENCES

COUNTY OF ERIE
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF ENVIRONMENTAL CONTROL

MEMORANDUM

FROM Ronald D. Koczaja DATE January 15, 1980

TO J. Tygert

SUBJECT Meeting with Mr. L. Whiting Re: Abandoned Gypsums Waste, Bloomingdale and Crittenden Rd. Akron

The I.A.T.F. report follow up inspection of a waste gypsum disposal area last used by the Georgia Pacific Co. found a 4-5 acre site mounded with waste to a height of approximately 30 feet. This property is no longer engaged in the production of gypsum products and is being converted into an industrial park. Mr. L. Whiting a present owner of the property attended a January 7, 1980 meeting at the DEC Regional Office to discuss the abandoned waste disposal site and prospects for proper closure.

Mr. Whiting reported that the site has a long (est. 90 year) history as a waste gypsum disposal area. The most recent gypsum product manufacturer being the Georgia Pacific Co. There was some thought expressed that the area was originally a wetlands prior to filling. Some of this material has been excavated and used as fill and cover material. Prior to closing the T. Newstead Landfill used this material for cover. Mr. Whiting has thoughts of continuing the sale of the material for fill when possible or using it himself to reclaim low lands for further development. Mr. Whiting stated he has no intention to properly close the landfill per Part 360 standards.

Following the meeting, the writer and Ms. Dowd discussed the situation and recommendations for future action. The possible usage of asbestos in gypsum products was a cause for concern and it was generally agreed that Mr. Whiting should be requested to inquire with past users of the site as to the composition of waste disposed. The reclamation process described by Mr. Whiting brought up the question of fugitive dust generation. This question should be directed to the air pollution section for consideration. Ms. Dowd and the writer generally agreed that a token reclamation of deposited wastes should not exempt this site from Part 360 regulations. Your review of these recommendations and direction for further follow up is requested.

RDK:ha

cc: D. Campbell
P. Dowd

SAVE OUR ENVIRONMENT - USE RECYCLED PAPER

COUNTY OF ERIE
DEPARTMENT OF ENVIRONMENT AND PLANNING
DIVISION OF ENVIRONMENTAL CONTROL

* * * MEMORANDUM * * *

FROM: Ronald A. Entringer DATE: 12/10/84

TO: Donald Campbell

SUBJECT: Site Inspection, Whiting Development, Site # 915027

On November 27, 1984, I inspected the refuse pile at the former Georgia Pacific Drywall Manufacturing Plant. This inspection was to ascertain the current status before preparation of a site profile. The site is shown on the attached USGS topographical map.

GENERAL SITE CONDITIONS

I walked the perimeter of this site which is essentially a three acre pile of waste, gypsum board and miscellaneous refuse. Most of the paper from the wallboard had deteriorated. The waste gypsum product had been placed in approximately three or four lifts five feet each. Where the refuse had been leveled, revegetation had occurred. Only the steep side slopes of the refuse pile were barren and could be subject to continual erosion.

The site is not fenced and can be readily accessed from all sides.

WATER POLLUTION

No leachate was observed coming from the refuse pile. Surface runoff would probably collect in the ditch along the railroad tracks on the north side of the property. This water appeared to be stagnant and contained considerable algae growth. This discharges to a tributary of Leach Creek which flows north across the wetland. This tributary does not seem to be unusually polluted.

The impact of this site on groundwater is probably minimal since observations around the perimeter of the site show a clay material which corresponds to reports by the Soil Conservation Service.

SURROUNDING LAND USE

The closest residence to the pile is located to the north along Scotland Road. This is shown on the USGS map as a non-residential building, but this former trap shooting club is now being used as a residence. Also, not shown on the USGS map are four new houses, 4/10 of a mile north on Scotland Road south of the intersection with Carney Road.

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There are also several residences and a tavern along Bloomingdale Road and a tavern. One residence near the northeast corner of Bloomingdale and Scotland Road is not shown on the USGS map. All the residences along Bloomingdale Road are in a water district and appeared to be served since there are fire hydrants located along the north side of Bloomingdale Road.

AIR POLLUTION

No odors were observed from the gypsum pile nor does it appear that dust is a problem. The gypsum and paper combination appears to hold moisture and suppress any dust from forming.

CONTINUED DUMPING

While the main pile contains some miscellaneous refuse and industrial debris along the edges, in addition to the gypsum wallboard, there was an area that appeared to be receiving continued dumping. This area is shown on the USGS map and also on the aerial photograph and is located south of the main pile and just east of some of the buildings which are now being sublet for warehouse and light manufacturing.

The area surrounding this dump has been recently graded and showed caterpillar tractor tracks. Even though signs were posted which prohibited dumping, there were several drums which were closed but were apparently full of solids such as resins or paint sludges. One drum was open and contained an oily liquid with a solvent odor. There was also roofing paper, some long foam strips, boxes and one carton which had the label of Whiting Rollup Door. Slightly west of the dump area was a large transformer. The gauge on the liquid level showed that the former transformer was approximately 25% full of its capacity of 780 gallons of oil. At the bottom of the transformer, the valve was wet with oil with a slight stain on the ground. I took the serial number and will attempt to find out from the manufacturer of Westinghouse whether this transformer could contain PCB oils.

RAE

RONALD A. ENTRINGER, P.E.
Asst. Env. Quality Engineer

RAE:rb

County of Erie

EDWARD J. RUTKOWSKI
COUNTY EXECUTIVE

DEPARTMENT OF ENVIRONMENT AND PLANNING

JOAN E. LORING
COMMISSIONER

ANTHONY T. VOELL
DEPUTY COMMISSIONER
ENVIRONMENTAL CONTROL

December 20, 1984

Whiting Roll-up Door Manufacturing Corp.
113 Cedar Street
Akron, New York 14001

Attn: Mr. L. Whiting

Re: Dumping at Whiting Development-
former Georgia Pacific Plant.

Dear Mr. Whiting:

On November 27, 1984, this Department inspected the Whiting Development properly and found evidence of continued dumping. We call your attention to two items of particular concern:

1) Several drums containing possibly resins or paint sludges, and one open drum with a distinct solvent odor.

2) A large transformer.

Please respond by January 10, 1985, how you plan to properly dispose of these items. We will require you to determine whether the drums contain hazardous materials, and whether the transformer is contaminated with PCB's.

An inexpensive means of making a rough determination of PCB contamination is the "Clorinol" test for PCB's available from Niagara Mohawk. Contact Steve De Joseph at 856-2424 (ext. 245). Please notify us if you plan to use this test since we want to be present to verify its results.

If you have any questions, please contact me at 846-7674.

Very truly yours,

DONALD CAMPBELL, P.E.
Sr. Env. Quality Engineer
Division of Environmental Control

DC:RAE:rb

WHITING
AKRON, NEW YORK 14001

ROLL-UP DOOR MFG. CORP.
ROLL-UP TRUCK & TRAILER DOORS
716-542-5427

January 9, 1985

County of Erie
Department of Environment & Planning
Erie County Office Building
95 Franklin Street
Buffalo, New York 14202

ATTENTION: Mr. Donald Campbell,
Sr. Env. Quality Engineer

Dear Mr. Campbell:

As a follow up to your letter dated December 20th.

1. We will make arrangements to send the items listed to an appropriate disposal site.

2. The transformer has been tested by an independent testing laboratory as we are contemplating selling it. There is no PCB in it.

If there are any additional questions, feel free to contact this office.

Sincerely,

WHITING ROLL-UP DOOR MFG. CORP.

Lauren C. Whiting
Secretary

LCW/cmg

CORPORATE OFFICE: AKRON, N. Y. 14001
113 Cedar Street
Phone: 716-542-5427
TLX 91-587

FACTORIES: FLORISSANT, MO. 63035
5015 N. Highway 67
Phone: 314-741-6880
TLX 44-2345

SAN JOSE, CALIF. 95116
370 S. 22nd Street
Phone: 408-286-2470
TLX 34-6440

915027

NUS CORPORATION
A Halliburton Company

RECEIVED Site Whiting Devel
MAY 14 1986
BUREAU OF HAZARDOUS SITE CONTROL

POTENTIAL HAZARDOUS WASTE SITE

PRELIMINARY ASSESSMENT

Whiting Development Corporation **Site Name**	NYD980535579 **EPA Site ID Number**
13550 Bloomingdale Road Newstead, New York 14001 **Address**	02-8603-34 **TDD Number**

Date of Site Visit: Off-site reconnaissance conducted 4/3/86

SITE DESCRIPTION

An off-site reconnaissance of the Whiting Development Corporation site revealed that this site is the same as Georgia-Pacific, EPA ID # NYD055057830 and Georgia-Pacific Corporation EPA ID #NYD002103737.

The site, identified as the Whiting Industrial Park houses several companies and the Georgia Pacific site. The Erie County Department of Environment and Planning reported that the Georgia Pacific property was sold to the Whiting Development Corporation following the shutdown of its operation in 1978.

The site consists of several buildings and an open dump area that is alleged to contain wood, paper, gypsum waste, metal waste tires, plastic, drums and possibly asbestos waste. The site is located approximately ½ mile northeast of the Town of Akron in a semi-rural area of Newstead, New York.

Note: The attached Preliminary Assessment report was submitted by Dennis Sutton on 3/11/86 for Georgia Pacific TDD # 02-8601-28.

PRIORITY FOR FURTHER ACTION: High ___ Medium X Low ___ None ___

RECOMMENDATIONS

A site investigation and sampling are recommended to determine the extent and type of waste dumped. It should be established whether or not waste contains asbestos and if it is migrating off-site.

Prepared by: Stephen E. Maybury **Date:** 4/16/86
of NUS Corporation

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NY D002103737

II. SITE NAME AND LOCATION
01 SITE NAME (Legal, common, or descriptive name of site)
Georgia-Pacific
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Bloomingdale & Scotland Rd.
03 CITY
Akron
04 STATE | 05 ZIP CODE | 06 COUNTY | 07 COUNTY CODE | 08 CONG DIST.
NY | 14001 | Erie | 029 | NY38
09 COORDINATES
LATITUDE: 43° 02' 00"N
LONGITUDE: 078° 28' 40"W
10 DIRECTIONS TO SITE (Starting from nearest public road)
Northeast corner of intersection of Bloomingdale and Scotland Road in Village of Akron, Erie Co., New York.

III. RESPONSIBLE PARTIES
01 OWNER (If known)
Mr. Loren Whiting, Whiting Roll Up Door
02 STREET (Business, mailing, residential)
113 Ceder Street
03 CITY
Akron
04 STATE | 05 ZIP CODE | 06 TELEPHONE NUMBER
NY | 14001 | (716) 542-5427
07 OPERATOR (If known and different from owner)
Whiting Realty Industrial Park
08 STREET (Business, mailing, residential)
113 Ceder Street
09 CITY
Akron
10 STATE | 11 ZIP CODE | 12 TELEPHONE NUMBER
NY | 14001 | (716) 542-5427
13 TYPE OF OWNERSHIP (Check one)
[X] A. PRIVATE [ ] B. FEDERAL: (Agency name) [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL
[ ] F. OTHER: (Specify) [ ] G. UNKNOWN
14. OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
[ ] A. RCRA 3001 DATE RECEIVED: / / [ ] B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / /
[X] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD
01 ON SITE INSPECTION
[X] YES DATE: 9 / 27 / 79
[ ] NO
BY (Check all that apply)
[ ] A. EPA [ ] B. EPA CONTRACTOR [ ] C. STATE [ ] D. OTHER CONTRACTOR
[X] E. LOCAL HEALTH OFFICIAL [ ] F. OTHER: (Specify)
CONTRACTOR NAME(S): County of Erie
02 SITE STATUS (Check one)
[ ] A. ACTIVE [X] B. INACTIVE [ ] C. UNKNOWN
03 YEARS OF OPERATION
BEGINNING ENDING [X] UNKNOWN
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Gypsum board, wood, metal, used tires, plastic, drums, cans, paper and gypsum waste which may contain asbestos.
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Possible asbestos in gypsum board and possible dust generation according to reports.

IV. PRIORITY ASSESSMENT
01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
[ ] A. HIGH (Inspection required promptly) [X] B. MEDIUM (Inspection required) [ ] C. LOW (Inspection on time available basis) [ ] D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM
01 CONTACT | 02 OF (Agency/Organization) | 03 TELEPHONE NUMBER
Diana Messina | U.S. EPA Region II Edison, N.J. | (201) 321-6685
04 PERSON RESPONSIBLE FOR ASSESSMENT | 05 AGENCY | 06 ORGANIZATION | 07 TELEPHONE NUMBER | 08 DATE
Dennis Sutton | | NUS FIT II | (201) 225-6160 | 3 / 18 / 86

EPA FORM 2070-12 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

1. IDENTIFICATION
01 STATE 02 SITE NUMBER
NY D002103737

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- X B. POWDER, FINES
- _ C. SLUDGE
- _ D. OTHER: _____ (Specify)
- _ E. SLURRY
- _ F. LIQUID
- _ G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS 290,400
NO. OF DRUMS Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

- _ A. TOXIC
- _ B. CORROSIVE
- _ C. RADIOACTIVE
- _ D. PERSISTENT
- X E. SOLUBLE
- _ F. INFECTIOUS
- _ G. FLAMMABLE
- _ H. IGNITABLE
- _ I. HIGHLY VOLATILE
- _ J. EXPLOSIVE
- _ K. REACTIVE
- _ L. INCOMPATIBLE
- _ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			Waste consists of approx. 3 acres
OLW	OILY WASTE			of waste gypsum board approx. 20
SOL	SOLVENTS			feet high and lumber, metal, empty
PSD	PESTICIDES			drums and old tires according to
OCC	OTHER ORGANIC CHEMICALS			past on-site investigation.
IOC	INORGANIC CHEMICALS	290,400	yd^3	
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	Unknown		Landfilled		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (See specific references, e.g., state files, sample analysis, reports)

Initial Evaluation of Industrial and Hazardous Waste Sites by Ronald Koczaja, Bureau of Water Resources.
Memorandum Re: Meeting with Mr. Whiting Re: Abandoned Gypsum Waste 1/15/80 - County of Erie, Dept. of Environment & Planning, Division of Environmental Control.
Off-site Reconnaissance of Georgia-Pacific conducted by NUS Region II FIT on 2/26/86.
USGS Topographic Map Akron, N.Y. Quad.
Telecon Note between Dennis Sutton & Ron Koczaja, 3/13/86, Re: Akron Drinking Water.

EPA FORM 2070-12 (7-81)

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

Potential exists since landfill is unlined. There is a possibility that illegal dumping has occurred in the past. Exposed drums have been observed on-site. Contaminants, if present, may percolate to groundwater.

01. X B. SURFACE WATER CONTAMINATION 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

Potential for surface water contamination from rain runoff. Site is south of Newstead Wetlands area and tributary of Ledg Creek.

01 X C. CONTAMINATION OF AIR 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGE
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is a potential for air contamination from wind blown dust.

01. X D. FIRE/EXPLOSIVE CONDITIONS 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is potential since waste characteristics are unknown.

01. X E. DIRECT CONTACT 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGE
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is a potential for direct contact with waste at dump site which is near a rural inhabited area. The site is not fe

01 X F. CONTAMINATION OF SOIL 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 AREA POTENTIALLY AFFECTED: Unknown (ACRES) 04 NARRATIVE DESCRIPTION

The material has been used for fill. There is a potential for soil contamination. The waste is deposited directly on soil surface.

01. X G. DRINKING WATER CONTAMINATION 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is a potential for waste to be transported to groundwater. Drinking water is drawn from private wells in this area.

01 X H. WORKER EXPOSURE/INJURY 02 OBSERVED (DATE:) X POTENTIAL _ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is a potential for work crews on site to be affected from airborne particulate.

01 X I. POPULATION EXPOSURE/INJURY 02 OBSERVED (DATE:) X POTENTIAL _ ALLE
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

There is a potential for population exposure to waste surrounding site form airborne dust. Village of Akron is directly southwest of site approx. 1 mile away. There is a potential for exposure to those using groundwater for drinking if contaminants migrate to groundwater.

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X J. DAMAGE TO FLORA — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

There was very little vegetation seen in the disposal area. Potential for damage to surrounding wetlands and forested areas is possible.

01 X K. DAMAGE TO FAUNA — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

Potential exists for local fauna to be damaged. Characteristics of waste on-site have not been determined.

01 X L. CONTAMINATION OF FOOD CHAIN — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

Potential for contamination of food chain if waste migrates off-site., Site is in rural forested area with streams and wetlands.

01 X M. UNSTABLE CONTAINMENT OF WASTES — 02 _ OBSERVED (DATE: _____) X POTENTIAL X ALLEGED
(Spills/runoff/standing liquids/leaking drums)
03 POPULATION POTENTIALLY AFFECTED: Unknown
04 NARRATIVE DESCRIPTION

Material is bulk waste and has been sold for use as fill. Landfill area not lined or covered. High potential exists due to windblown dust from site.

01 X N. DAMAGE TO OFFSITE PROPERTY — 02 _ OBSERVED (DATE: _____) X POTENTIAL X ALLEGED
04 NARRATIVE DESCRIPTION

Runoff could contaminate off-site property. Transported fill could contaminate off-site property.

01 X O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 _ OBSERVED (DATE: _____) X POTENTIAL _ ALLEGED
04 NARRATIVE DESCRIPTION

There is a potential for drainage ditch contamination from runoff of site.

01 X P. ILLEGAL/UNAUTHORIZED DUMPING — 02 _ OBSERVED (DATE: _____) X POTENTIAL X ALLEGED
04 NARRATIVE DESCRIPTION

Potential exists. Site is not fenced. Past history indicates that illegal dumping may have occurred.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

The fill has been removed from the site and used as fill and cover material in other areas unknown at this time.

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS

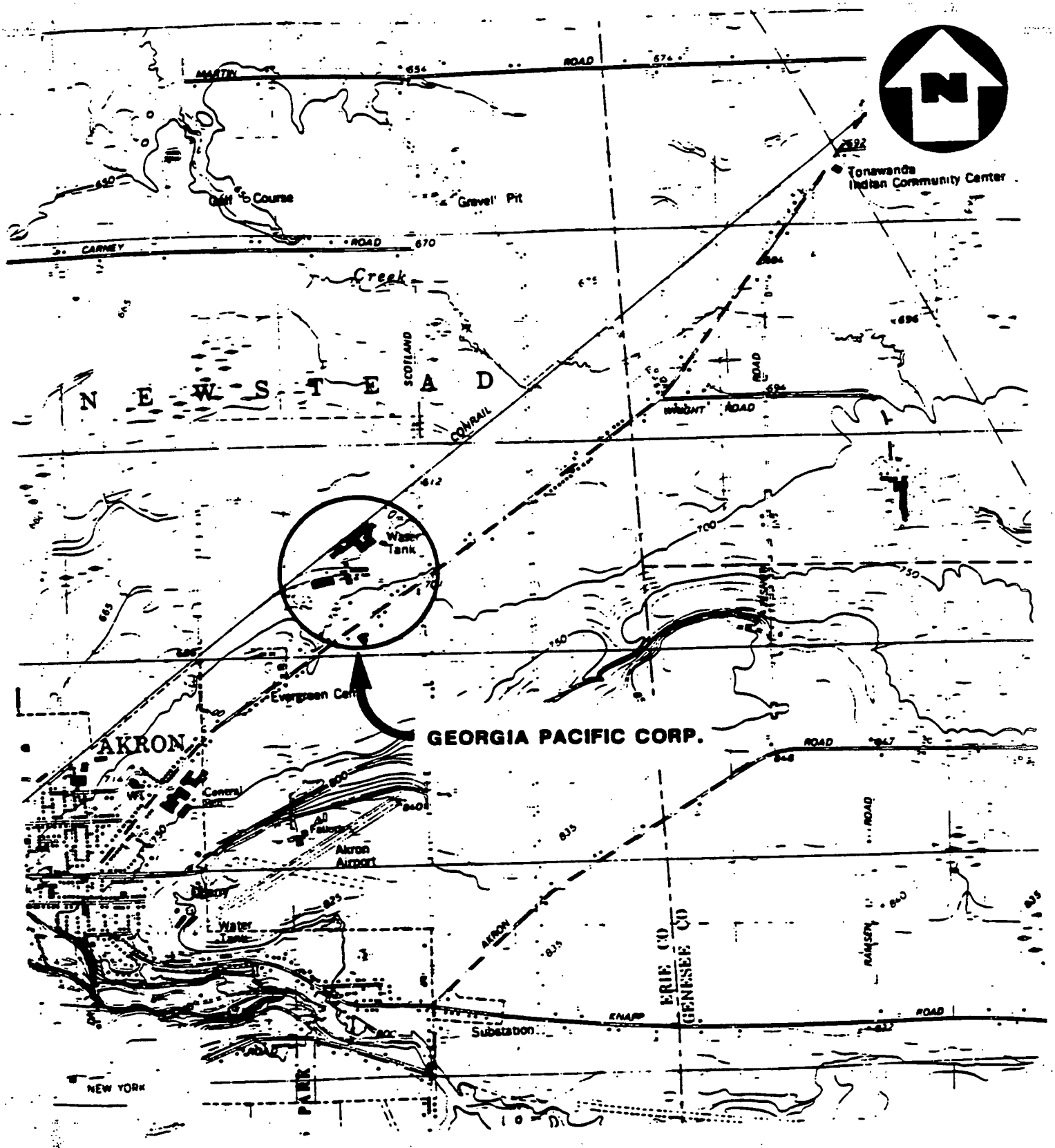
This site is the same as EPA ID #NYD55037830. Site is owned by Mr. Loren Whiting - Whiting Industrial Park.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Off-site Reconnaissance of Georgia Pacific conducted by NUS Region II FIT on 2/26/86.
USGS Topographic Map Akron, New York Quad.
Telecon Note between Dennis Sutton & Ron Koczaja, 1/13/86, Re: Akron Drinking Water.
Erie County Dept. of Environmental Planning, Initial Evaluation of Industrial and Hazardous Waste Sites - Abandoned Georgia Pacific Disposal Area, prepared by R. Koczaja.

APPENDIX A

MAPS AND PHOTOGRAPHS



(QUAD) AKRON, N.Y.

FIGURE 1

SITE LOCATION MAP

GEORGIA PACIFIC CORP., AKRON, N.Y.

SCALE: 1"= 2000'

NUS CORPORATION

A Halliburton Company

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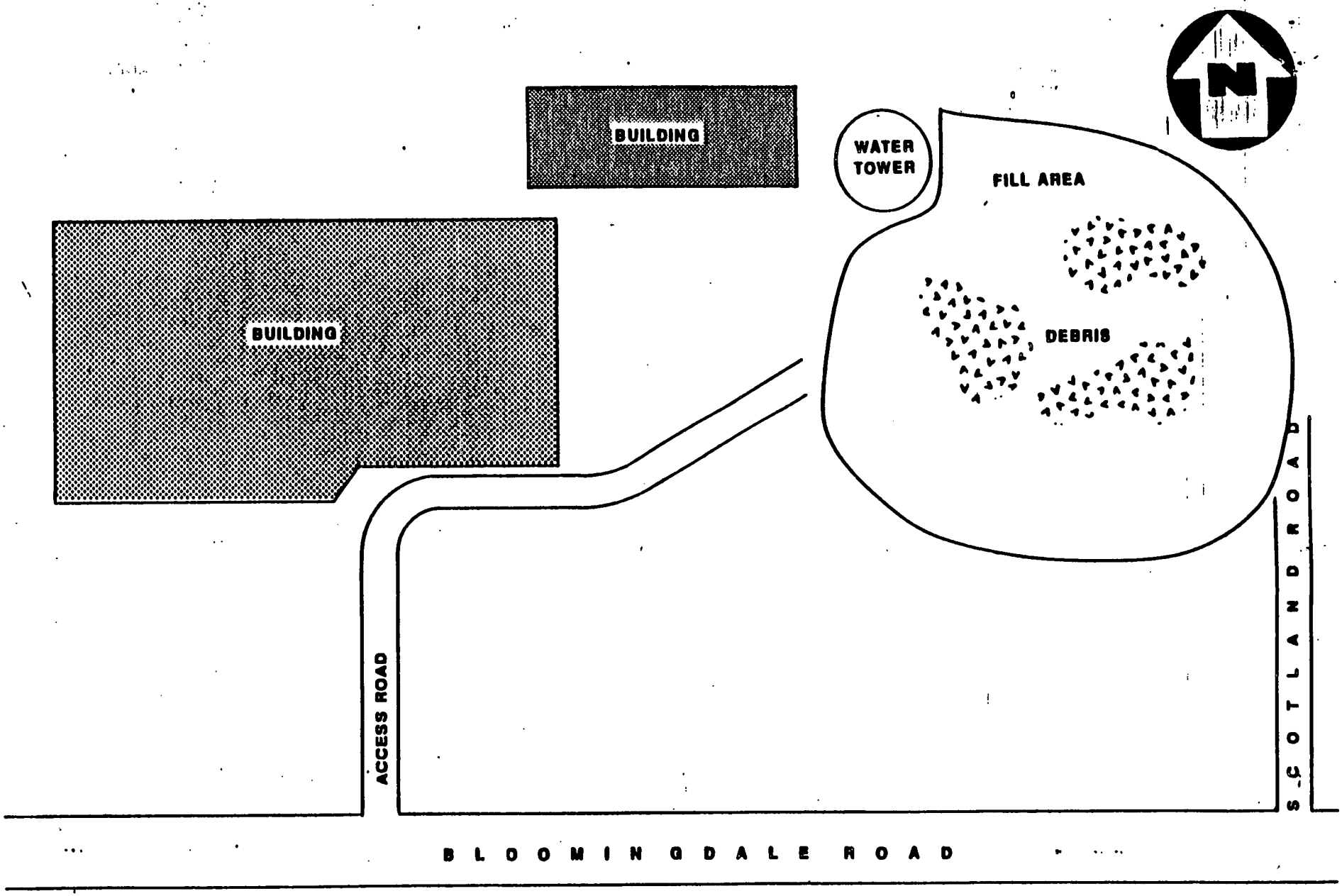

FIGURE 2

SITE MAP

GEORGIA-PACIFIC, AKRON, N.Y.

(NOT TO SCALE)

NUS CORPORATION

A Halliburton Company

QE
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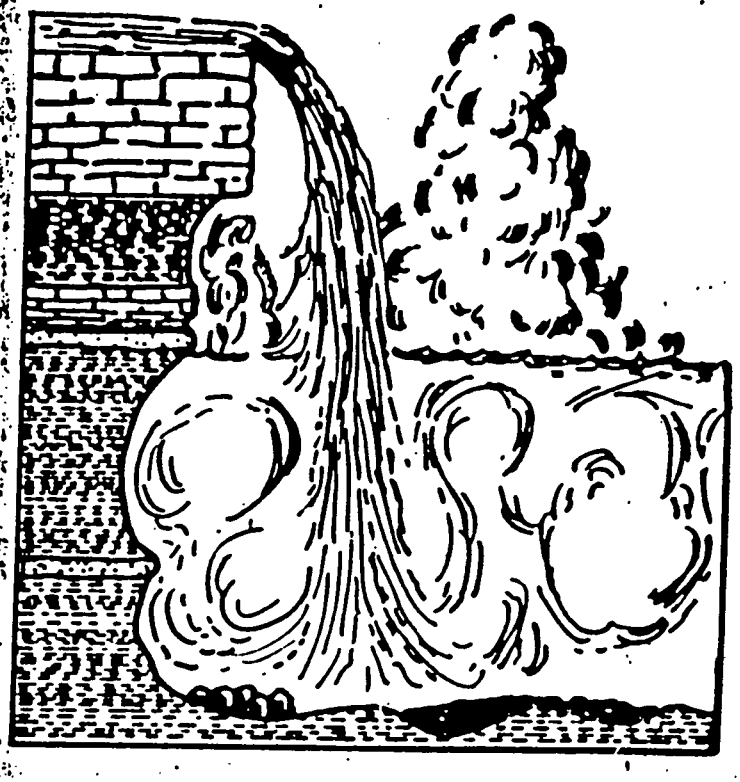
GEOLOGY OF WESTERN NEW YORK

GUIDE BOOK



NEW YORK STATE GEOLOGICAL ASSN.

38th ANNUAL MEETING

1966

DEPARTMENT OF GEOLOGICAL SCIENCES
STATE UNIVERSITY OF NEW YORK AT BUFFALO
BUFFALO, N. Y.

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E. J. Buehler, Editor

C-15

Throughout most of the subsurface and presumably along the outcrop belt as well, the Vernon may be subdivided into three parts. Significant facies changes occur. In all three divisions these changes involve the lateral replacement of red shale in the east by mixed red and green shale, then green or gray shale and dolomites, and finally dolomites with anhydrite and halite in the west.

Syracuse Formation

The Syracuse Formation of Clarke, 1903, has recently been redefined, described and traced along the Silurian outcrop belt by Leutze (1955, 1959). The name originally was proposed for the subsurface salt beds of the Salina Group, but it is now also applied to the associated dolomites, anhydrites and shales. Thus the formation can be recognized along the outcrop belt where the salt beds have been dissolved by ground water.

In Onondaga County, Leutze subdivided the Syracuse into five members, some of which are exposed in the standard reference section, a railroad cut near Manlius Center. These consist of gray shales and gray or brown dolomites with interbedded clay (leached salt beds) and gypsum. The formation is about 160 feet thick. Leutze discovered fossils in several horizons within the formation and assembled a collection of brachiopods, pelecypods, ostracodes, gastropods, cephalopods, and eurypterids. He was able to map the Syracuse Formation and to recognize its subdivisions eastward into southernmost Herkimer County but was unable to carry his detailed work west of Cayuga Lake where the formation is virtually unexposed.

In the vicinity of Buffalo, the Syracuse consists of dolomites and anhydrite but lacks significant beds of salt. It is about 100 feet thick and is not known to be exposed in the Niagara Frontier.

In the subsurface the Syracuse is a readily recognizable portion of the Salina Group but it cannot be subdivided into the five members distinguished by Leutze along the outcrop. The majority of the halite and anhydrite beds of the subsurface Salina Group occur in the Syracuse Formation. Thicknesses in excess of 1000 feet are attained in the center of the Salina basin.

Camillus Shale

The upper portion of the Salina Group in Onondaga County and eastward consists of a chunky green shale, unfossiliferous, with some red beds in southernmost Herkimer County. Leutze (1959) restricted the application of the name Camillus (Clarke, 1903) to this portion of the Salina. It is about 200 feet thick in the type area, somewhat thinner both east and west of there.

In the Niagara Frontier the Camillus is 80-100 feet thick and includes the O-atka beds of Chadwick (1917), formerly assigned to the overlying Bertie Formation. The Predominate lithology is a green shale, but dolomite, anhydrite and siltstone, also occur. Eurypterids have been reported from a dolomite bed near the top of the formation in

Chadwick's O-atka beds. This uppermost portion of the Camillus is exposed at Akron Falls, Indian Falls, Morganville and Oatka Falls. Another exposure of the Camillus is a small section along Murder Creek north of Akron.

At several localities along the Silurian outcrop belt there are underground mines for gypsum formed by conversion of the subsurface anhydrite of the Salina Group to gypsum through hydration by ground water. The National Gypsum Company has a mine at Clarence Center, the Bestwall Gypsum Company at Akron and the United State Gypsum Company at Oakfield. The stratigraphic position of the gypsum beds mined by these companies has, in the past, been assigned to the Camillus. They are located about 200 feet below the base of the Onondaga Limestone. In nearby gas wells, the Camillus is anhydritic but significant beds of anhydrite occur only in the Syracuse Formation, 150 to 200 feet below the Onondaga. Further study is needed but it appears that the gypsum mines may be in the Syracuse rather than the Camillus. The thickness of the Camillus in the subsurface appears to be quite uniform but the formation has several facies. Dolomite and anhydrite comprise significant portions of the Camillus in the center of the Salina basin; red shales become predominate in the east.

Bertie Formation

The type section of the Bertie Formation (Chapman, 1864) is located in Bertie township, Welland County, Ontario. In an abstract Chadwick (1917) subdivided the Bertie of western New York into four members, in descending order: Buffalo cement bed, Scajaquada shale and dolomite, Falkirk dolomite and O-atka shale (here included in the underlying Camillus). Chadwick later (see Clarke, 1918, p. 42) renamed the upper member Williamsville as the term Buffalo was preoccupied. The Bertie of western New York is everywhere underlain by the Camillus Shale and overlain, where complete sections are found, by the Akron Dolomite. Owing to the relief of a pre-Onondaga unconformity, however, exposures are found where the Onondaga Limestone directly overlies the Williamsville Member of the Bertie or some lower member. Chadwick was first to point this out.

The thickness of the Bertie Formation in western New York is uncertain because few exposures continue downward into the underlying Camillus Shale. It is believed to be about 50 feet thick where all members are present. Its thickness will, of course, vary from place to place depending upon the amount removed by erosion prior to deposition of the Onondaga Limestone. The contact of the Bertie with the overlying Akron Dolomite is gradational. Its contact with the underlying Camillus is much less clearly understood because of the lack of good exposures. Some authors (Grabau, 1901, p. 115) and Alling (1928, pp. 27-28) have suggested that this contact possibly is disconformable.

The Falkirk Member of the Bertie is composed of massive beds of dark gray dolomite, weathering yellowish brown, which are characterized by coarse conchoidal fracturing, a small marine fauna and a basal eurypterid horizon. Owing to its greater resistance the Falkirk

commonly produces a waterfall where exposed in streambeds. Its thickness varies from 18 to 25 feet. The overlying Scajaquada Member consists of dark shales or blocky waterlimes, less resistant than the Williamsville above or the Falkirk below, and presumably contains more argillaceous material than those two members. It varies from 3 to 10 feet in thickness and, in southern Ontario, eurypterids occur near its base ("Bridgeburg horizon").

The Williamsville Dolomite, because it formerly was mined for natural cement in the vicinity of Buffalo, is perhaps the best known member of the Bertie. It consists of laminated, fine-grained dolomite, up to 5 or 8 feet thick, which weathers light gray. Its pronounced conchoidal fracture, among other criteria, serves to distinguish it from the overlying Akron Dolomite which has an irregular fracture. According to Monahan (1931, p. 379) most of the fossils, especially the eurypterids, of the Bertie Formation cited by Ruedemann (1925) and others have been obtained from the Williamsville Member.

The Bertie Formation is noted for its abundance of well-preserved eurypterids, most of which apparently were obtained from the upper or Williamsville Member. In addition to these, bryozoans, brachiopods, gastropods, cephalopods, ostracodes, and graptolites also have been found.

Exposures of the Bertie Formation and the overlying Akron Dolomite are fairly common in the Niagara Frontier region. Outcrops in Buffalo are located near the Main Street entrance to Forest Lawn Cemetery, in the storm sewer on East Amherst (old Bennett quarry), and in a New York Central Railroad cut between Kensington and Morris Avenues. East of the city important localities are in Ellicott Creek at Williamsville, in the Louisville Cement quarry near Clarence, at the falls in Akron Falls Park, at Indian Falls, at Morganville and along Route 19 and in Oatka Creek at North LeRoy.

Akron Dolomite

The highest rock unit of the Silurian in the Niagara Frontier is the Akron Dolomite (Lane and others, 1908). The type section is an outcrop in Murder Creek, at Akron, New York, where the formation is about 8 feet thick. Other exposures are cited in the discussion of the Bertie (except Indian Falls, Morganville and North LeRoy).

The Akron consists of gray to buff, mottled and banded dolomite, fine-grained and often pitted by the solution of fossil corals. The lower contact with the Bertie is gradational and difficult to identify. The upper contact with the Onondaga Limestone is a conspicuous disconformity broadly undulating, with occasional channels or "dikes" of sandstone or arenaceous limestone extending down into the underlying Akron (or Bertie where the Akron is absent). Although not an abundantly fossiliferous rock, the Akron is the most fossiliferous portion of the entire Cayugan Series in western New York. Its fauna includes corals, brachiopods, gastropods, cephalopods, and ostracodes. Eurypterids and graptolites also have been reported but are relatively rare.

The Akron Dolomite of western New York appears to be a continuation of the Cobleskill Limestone of Eastern New York. Doubts regarding the tracing and correlation of these units, particularly the Akron, across Ontario, Monroe and Genesee Counties persist despite the efforts of several stratigraphers (Schuchert, 1903; Hartnagel, 1903; Alling, 1928; Hoffman, 1949; Rickard, 1953; Leutze, 1959). In the subsurface it frequently is not possible to separate the Akron-Cobleskill from the underlying Bertie in sample logs because the lithologic differences are slight. However, where the Cobleskill is a fossiliferous limestone, the separation is more easily made. Radioactivity logs provide an additional means of differentiating these formations in some parts of the subsurface.

UPPER DEVONIAN STRATIGRAPHY AND PALEONTOLOGY OF SOUTHWESTERN NEW YORK STATE (ERIE, CHAUTAUQUA AND CATTARAUGUS COUNTIES)

by Dr. Irving H. Tesmer

State University of New York College at Buffalo

Upper Devonian rocks in southwestern New York State consist of about 2500 feet of largely detrital material associated with the Catskill Clastic Wedge. During Late Devonian time, clastic sediment gradually spread westward and northwestward across New York State and Pennsylvania, eventually filling the epeiric seas that occupied the Appalachian Trough and adjacent areas.

There is some disagreement as to the exact boundaries that mark the base and top of the Upper Devonian in southwestern New York State but the present writer includes all strata from the base of the Geneseo Member of Genesee Formation to the top of the Cattaraugus Formation (Cooper et al., 1942; Rickard, 1964). The overlying Knapp Conglomerate is considered to be Lower Mississippian (Holland, 1959).

Some authors have subdivided Upper Devonian strata into two series, an earlier Senecan and a later Chautauquan. Although there may be some paleontological evidence (especially cephalopods) to suggest this, the present writer does not see strong justification for such a division in southwestern New York State and therefore assigns all Upper Devonian units to a single series, the Chautauquan.

Within the Chautauquan Series, three groups are recognized (Tesmer, 1955), in ascending order the Seneca (600 feet), Arkwright (1250 feet) and Conewango (650 feet). The boundaries between these groups are based upon lithologic changes and facies differences that are persistent throughout the three counties of southwestern New York, namely Erie (Buehler and Tesmer, 1963), Chautauqua (Tesmer, 1963) and Cattaraugus. The Seneca Group extends from the base of the Geneseo Member of the Genesee Formation to the top of the Hanover Member of the Java Formation. The Arkwright Group includes strata from the base of the Dunkirk Member of the Canadaway Formation to the top of the Ellicott Member of the Chadakoin Formation. Locally assigned to the Conewango Group is the Cattaraugus Formation. It includes redbeds, conglomerates and coarse buff sandstones interbedded with marine siltstones and shales.

The Seneca Group includes in ascending order the Genesee, Sonyea, West Falls, and Java Formations. These units are largely gray and black shales although a few limestone and siltstone beds also occur. Although the Genesee Formation varies only from about 10 to 20 feet in thickness, various members have been recognized including the Geneseo Shale (2 inches to 2 feet of black shale), Penn Yan Shale (9 inches of dark gray shale) [deWitt and Colton, 1959], Genundewa Limestone (2 inches to 2 feet of light to dark gray limestone) and West River Shale (8 to 14) feet of gray shale. The Genundewa and West River Members include numerous species of conodonts and fish but the faunal content of the thin Geneseo and Penn Yan Members is less well known in Erie County.

THE HAMILTON GROUP IN WESTERN NEW YORK

By Edward J. Buehler

State University of New York at Buffalo

Circumstances which developed at the last minute left us without a paper on the Hamilton Group of Western New York. There was, of course, no intent to slight this most interesting and richly fossiliferous section of rock. Therefore, a column (fig. 1) a few notes and references are inserted here.

The two post-Hall classical works on the Hamilton are Grabau's (1898) Geology and Paleontology of Eighteen Mile Creek, and Cooper's (1930) Stratigraphy of the Hamilton Group of New York. deWitt (1956) describes the upper Hamilton of the Eden quadrangle. Buehler and Tesmer (1963) summarize the data on the paleontology and stratigraphy of the Hamilton group in Erie County. The chart "Correlation of the Devonian in New York State" by Rickard (1964) gives correlation across the state and the depositional phases as well as other stratigraphic information.

The Hamilton sediment of western New York was deposited at the western, seaward extremity of the Catskill Delta. This facies situation is described, with varying degrees of accuracy, in every textbook on stratigraphy and historical geology and should be familiar to all. The Marcellus and Skaneateles Formations are black and bluish-gray shale with thin limestone beds. They are separated by the Stafford Limestone, regarded as the base of the Skaneateles. Large pyrite nodules are common near the base of the Oatka Creek Shale and the brachiopod *Leiorhynchus limitare* is abundant near the top. Portions of these units, especially near the top of the Oatka Creek, are fossiliferous; other are not.

The Ludlowville and Moscow Formations consist of calcareous gray shale which may weather to a clayey consistency. Concretionary layers and thin limestone beds are common. Two of these limestones, the Centerfield and Tichenor are used as key beds in correlation and subdivision of the Hamilton Group. The upper Hamilton, especially the upper part of the Ludlowville, is richly fossiliferous. The fauna is predominantly one of corals, bryozoans, and brachiopods. Some of the particularly abundant species are *Stereolasma rectum*, *Athyris spiriferoides*, *Mucrospirifer mucronatus*, and *Favosites, hamiltoniae*. The tabulate *Pleurodictyum americanum* is common at the base of the Wanakah shale and the brachiopod *Ambocoelia umbonata* is abundant at the base of the Moscow shale. Some beds contain common specimens of the trilobite *Phacops rana*. The Tichenor is a crinoidal limestone. Molluscs, ostracodes and tentaculitids are also common in the upper Hamilton and there is a modest amount of plant material. Many of the fossils are extremely delicate and show little or no evidence of transportation. The fossiliferous pyrite (?) concretions occur in the Ledyard member. The Middle Devonian is separated from the Upper Devonian by the lensatic Leicester Pyrite.

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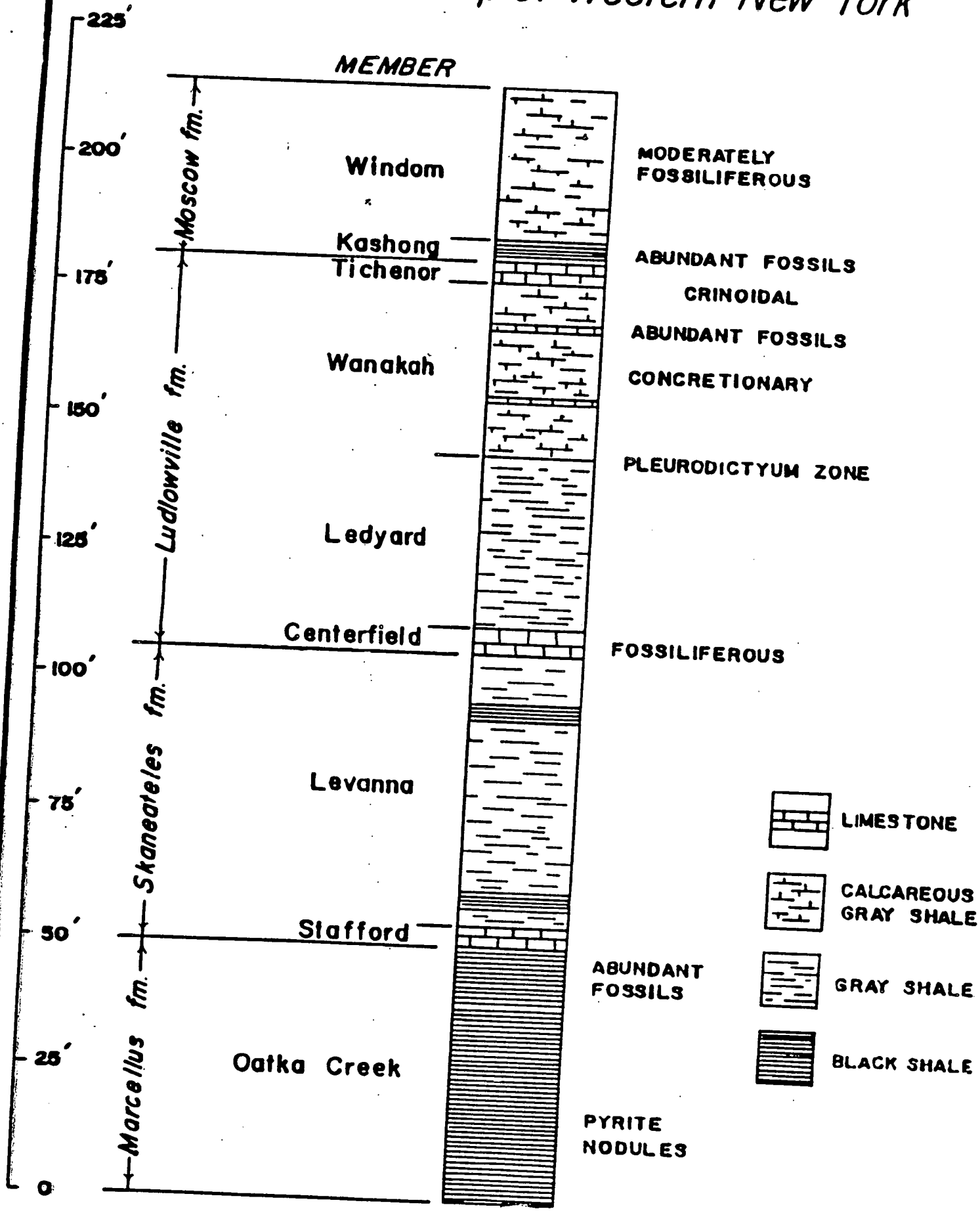
Hamilton Group of Western New York



The Sonyea Formation (Colton and deWitt, 1958) is divided into an older Middlesex Shale and younger Cashaqua Shale Member. The 6 to 8 feet of black Middlesex shales contain some conodonts and the 35 to 75 feet of gray Cashaqua shales have a modest molluscan fauna including several species of the cephalopod *Manticoceras*.

The next youngest unit is the West Falls Formation (Colton, 1956; de Witt, 1956; Pepper, de Witt and Colton, 1956) consisting of an older Rhinestreet Shale (150 to 195 feet of black shale), Angola Shale (220 to 340 feet of mostly light gray shale with some interbedded dark gray shale, thin limestones and calcareous siltstones) and younger Nunda Siltstone (0 to 25 feet of light gray siltstone) Member. The Rhinestreet has a very rich conodont (Youngquist, Hibbard and Reimann, 1948) and fish (Carter, 1945) fauna, including several species of *Dinichthys* while the gray Angola shales have an entirely different faunal assemblage, almost all mollusks (Clarke, 1904). The faunal content of the Nunda Siltstone Member, limited to eastern Erie County, is as yet unknown locally.

The Java Formation (Pepper and deWitt, 1950; deWitt and Colton, 1953; deWitt, 1960) is divided into an older Pipe Creek and a younger Hanover Member. The Pipe Creek contains from one to two feet of black shale with some carbonized plant remains and conodonts. In the 85 to 95 feet of Hanover, some conodonts and mollusks have been collected. The Hanover is largely composed of gray shales but also includes some interbedded dark gray shales and thin limestones, as well as several zones of calcareous nodules. It is similar in appearance to the older Angola Shale Member of the West Falls Formation.

The Arkwright Group (Tesmer, 1955) includes an older Canadaway and younger Chadakoin Formations. These units consist of black and gray shales interbedded with an increasing percentage of gray siltstone toward the top of the group. Seven members are recognized in the Canadaway Formation of Chautauqua County, the Dunkirk (oldest), South Wales (Pepper and deWitt, 1951), Gowanda, Laona, Westfield, Shumla and Northeast (youngest). The Dunkirk Shale is composed of about 40 feet of black shale containing a few carbonized plants and conodonts. The overlying South Wales Member includes from 60 to 80 feet of interbedded gray and black shales with a limited faunal and floral content similar to the underlying Dunkirk Shale Member. Above the South Wales are found from 120 to 230 feet of mostly gray shales and siltstones with some black shale beds, assigned to the Gowanda Member. Although Gowanda fossils are not numerous nor widely distributed stratigraphically, a considerable number of species have been collected, largely mollusks and conodonts. The faunal assemblage and accompanying lithologies are quite like the older Angola Member of the West Falls Formation and the Hanover Member of the Java Formation. This marks the last appearance of the "Naples Fauna" of Clarke (1904).

The Laona Siltstone Member of the Canadaway Formation contains many species introduced for the first time in southwestern New York State. These include the brachiopods *Ambocoelia gregaria, Athyris angelica, Camarotoechia contracta* and *Tylothyris mesacostalis* as well

as the pelecypod *Mytilarca chemungensis*. The Laona attains a maximum thickness of about 25 feet of mostly gray siltstone and is essentially confined to Chautauqua County.

Above the Laona Siltstone one finds the Westfield Shale Member of the Canadaway Formation, comprised of 100 to 220 feet of gray shales with a few interbedded gray siltstones. These strata are largely barren of megafossils but a few brachiopods, plant stems and conodonts have been collected. The next youngest Shumla Siltstone Member has a nearly identical appearance to the older Laona Siltstone but is almost always barren except for scattered conodonts (Hass, 1958). The Shumla lenses as did the Laona, reaching a maximum thickness of about 35 feet. It is also essentially limited to Chautauqua County.

The thickest member of the Canadaway Formation is the uppermost Northeast Shale Member, varying from about 400 to 600 feet, and containing gray shales with considerable percentages of interbedded gray siltstones, particularly toward the top of the unit and in an eastward direction. In Cattaraugus County, where the Laona and Shumla Siltstone Members are not present, the nearly identical Gowanda, Westfield and Northeast Shale Members merge to form a very thick, undifferentiated sequence of gray shale beds with a fair percentage of interbedded gray siltstones. The Northeast Shale Member is often quite barren near the base of the unit, but the upper part of the member contains numerous specimens of *Ambocoelia gregaria, Camarotoechia contracta, Chonetes* spp., *Cyrtospirifer* spp., bryozoans and crinoid columnals.

In Chautauqua County, the Chadakoin Formation (Caster, 1934) contains an older Dexterville and a younger Ellicott Member. Both members are interbedded gray shales and siltstones, often nearly identical in appearance. The Dexterville Member, however, can be recognized by the presence of an index fossil, the brachiopod *Pugnoides duplicatus*, which is confined to this unit. In Cattaraugus County where *Pugnoides duplicatus* is nearly completely absent, the Chadakoin Formation is not differentiated into members. The Chadakoin Formation is about 250 feet thick, the Dexterville including the lower 100 feet, where recognized. Fossils are quite abundant in the Chadakoin (Caster, 1934) and various groups are represented, particularly bryozoans, brachiopods, pelecypods and conodonts. Many of the species were first introduced to the area during Laona times when a similar environment must have prevailed.

Much work remains to be done on the Conewango Group, which is locally the Cattaraugus Formation. This formation exhibits great variations in lithology, ranging from typical marine gray shales and siltstones through near-shore coarse buff sandstones and conglomerates to non-marine red shales, siltstones and sandstones. Total thickness is about 650 feet, within which there are many sandstone-conglomerate lenses. These lenses cannot be distinguished from one another in the field and must be separated by careful plotting as to geographic location and elevation. It is hoped that eventually the Cattaraugus Formation may be divided into an appropriate number of formal members (Tesmer, 1958) but presently the Cattaraugus is largely undifferentiated,

particularly in Cattaraugus County, its type locality. Faunal content is somewhat similar to the underlying Chadakoin Formation but several new genera are introduced, notably the pelecypod *Ptychopteria* (Butts, 1903; Chadwick, 1935). Some of the conglomerate lenses likely to be retained as members include the Panama, Pope Hollow, Salamanca and Wolf Creek.

GONIATITE ZONATION OF THE NEW YORK STATE DEVONIAN

by M. R. House

Department of Geology and Mineralogy
University Museum
Parks Road
Oxford, England

Goniatites are not uncommon in calcareous shales concretions, shales and siltstones in western New York and typically horizons bearing them tongue eastwards towards the more littoral deposits of the Catskills. Earlier goniatite horizons, in general, tongue farther east than the later horizons. Thus the Cherry Valley agoniatitid fauna is known almost to the Helderbergs, whilst the latest Famennian faunas, of the Gowanda and Ellicot Shales, have not been traced farther east than Chautauqua County. Faunas lack generic diversity when compared with corresponding European faunas, but they have a value far exceeding this apparent poverty since the horizons may be placed within successions which are known with greater stratigraphic precision than those of Europe. Their importance in establishing a zonal standard and for evolutionary studies generally cannot be over emphasized.

The most striking absentees from the New York goniatite faunas are, from the Middle Devonian, *Maenioceras*, *Sobolewia* (both known in Virginia), *Wedekindella* (known with *Maenioceras* in Canada), *Anarcestes* and *Pinacites*. The Senecan shows greater European affinity, but the probable absence of *Koenenites* (known in Michigan) and *Timanites* (known in Canada) and the rarity of *Beloceras* is striking. Only three genera of Famennian goniatites are known and clymenids are apparently absent. Future collecting may nevertheless yield more records. Elsewhere the author has related the unusual features of the goniatite faunas to a possible migration route from Europe and European Russia via the Arctic, around the northern borders of the Old Red Sandstone continent (House 1964).

ONONDAGA FORMATION

The earliest certain goniatite occurence in the state is *Foordites* cf. *Buttsi* (Miller) from the Nedrow member (Oliver 1956). This genus is not known before the Eifelian in Europe. No indubitably Lower Devonian goniaties are known.

HAMILTON GROUP

The first probable Givetian indicator is *Cabrieroceras plebeiforme* (Hall) from the Werneroceras Bed (Rickard 1952) just below the Cherry Valley Limestone: it occurs with *Parodiceras* sp. and *Subanarcestes* cf. *micromphalus* (Roemer). Shales immediately above the Werneroceras Bed contain *Agoniatites nodiferus* (Hall) (*fide* Rickard).

The Cherry Valley Limestone has yielded the types of *Agoniatites vanuxemi* (Hall), *A. intermedius* Flower, and *A. floweri* Miller, but it has been suggested (House 1962, p. 254) that these may be synonyms. In view of the importance of its descendants, *Parodiceras discoideum* (Hall) may be used as the zonal index. The succession given here for the higher Hamilton is substantially more detailed than an earlier generalized statement by the author in 1962. This results from study of the Tornoceratidae (House 1965). Skaneateles tornoceratids, *T. (T.) arkonense* etc., (better known from the Ontario contemporaries) are characterised by a shallower lateral lobe than those of the Ludlowville [*T. (T.) uniangulare widderi*], and this trend, essentially towards an increasingly steep ventrad face to the lateroumbilical saddle continues in the Moscow with the genotype from the Leicester Pyrite, *T. (T.) uniangulare uniangulare* (Conrad). A distinct ribbed form first noted by Professor J. W. Wells, from the King Ferry Shale on Cayuga Lake has been named *T. (T.) amuletum*. It is probable, but not certain, that this species is younger than *T. (T.) uniangulare aldenense* from the Alden Marcasite. Agoniatitids are also not uncommon in the Hamilton, but these have not, as yet, been studied in detail. The highest agoniatitid known is *Sellagoniatites unilobatus* (Hall) from Norton's Landing, Cayuga Lake. This genus occurs in the Canadian N. W. T. and in Europe is restricted to the upper Givetian (House and Pedder 1963, p. 512).

GENESEE GROUP

The earliest occurrence of Frasnian goniatites is in the Tully where *Pharciceras amplexum* occurs. Tornoceratids are common including forms comparable to *T. (T.) arcuatum* (House) from the Koenenites-bearing Squaw Bay Limestone of Michigan.

Typical lowest Frasnian ponticeratids occur in the Geneseo Shale, especially *P. perlatum* (Hall), and others, also *Epitornoceras peracutum* (Hall), the latter a rare genus also known in the European low Frasnian. From the Genundewa Limestone come the types of *Probeloceras genundewa, Manticoceras apprimatum, M. contractum, M. fasciculatum* and *M. styliophylum*. At Bethany Center *T. (T.) uniangulare compressum* is abundant. The record of a *Koenenites* from the West River Shale may be based on a *Manticoceras*.

SONYEA GROUP

From The Middlesex shale there are several records of noded goniatites probably referable to *Sandbergeroceras*. Goniatites are rare at this level and all so far found are crushed.

The fauna of the Cashaqua Shale is rich and varied. This is the source of *Probeloceras lutheri, P. (?) accelerans, Manticoceras sinuosum, M. tardum, M. neapolitanum* (formerly thought to be a clymenid), *Neomanticoceras naplesense, Eobeloceras* and probably also *Sandbergeroceras*. The fauna is at present being studied by Mr. W.T. Kirchgasser of Cornell. Particularly famous is the horizon of concretions with barytic replacements which lies some six feet below

the top of the formation in the gullies between Conesus and Honeoye Lake and especially in Shurtleff's Gully, 2.75 miles S. E. of Livonia.

WEST FALLS GROUP

There are singularly few records from the Rhinestreet Shale. At the top of the Unit *Manticoceras* and *Tornoceras* occur in concretionary horizons just below the 'Scraggy Bed' on Big Sister Creek and thereabouts. Large manticoceratids occur in giant concretions around the northern promontory of Grandview Bay. From the Angola Shale, however, many fine specimens are known. Recent work by the author has shown that Clarke's Big Sister Creek localities lie in the lower part of the Angola Shale where cyclothemic units of black shale, worm burrowed shale, grey shale and shale with concretions are repeated many times. A succession of the lowest six of these has been traced bed-for-bed as far east as the Warsaw Valley. The Gibson's Glen goniatite horizon is higher than these. The concretionary horizons almost invariably yield goniatites, but these become rarer to the east. Manticoceratids are chiefly of the *M. rhynchostoma* group and oxyconic groups: *Aulatornoceras* and *Tornoceras* are also common. Scattered records are known from the Gardeau, and farther east the records of *Beloceras* by Wells (1956) and of *Shindewolfoceras* are of interest in that they have not yet been found in supposed equivalent rock in the west.

JAVA GROUP

Goniatites are extremely rare in the Pipe Creek Shale, but from the Hanover Shale, especially from nodules in the lower fifteen feet, they are not uncommon. This is probably the source of the types of *M. cataphractum* and *Aulatornoceras rhysum*.

CANADAWAY GROUP

No goniatites are yet known from the Dunkirk Shale or South Wales Shale. From the Gowanda Shale at Corell's Point on Lake Erie shore 250 yards S.W. of the outlet of Walker Creek, 2.85 miles west of Brocton, Chatauqua Co. (House 1962) the *Cheiloceras* fauna is known. The same horizon, with *Cheiloceras amblylobum, Tornoceras (T.) concentricum* and *Aulatornoceras bicostatum* has now been located, in an identical concretionary layer, in Little Canadaway Creek below Lamberton, 2,200 feet N.W. of the junction of Lake Road and Rt. 20 at an altitude of about 630 feet, and again in Walnut Creek, below Forestville, about 200 yards upstream of the railroad culvert and at an altitude of about 847 feet. It is now clear that the horizon which yielded the types of *Aulatornoceras clarkei* is lower than this and occurs three feet above a 2 inch siltstone in the creek floor below the Sheridan Road bridge over Walnut Creek at Forestville. Both horizons are in the upper part of the Gowanda Shale.

GEOLOGY OF ERIE COUNTY New York

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BUFFALO SOCIETY OF NATURAL SCIENCES
BULLETIN

Vol. 21, No. 3 Buffalo, 1963

Surficial Geology

PHYSIOGRAPHY

Both the altitude and relief of the land surface tend to increase from north to south. The lowest elevation is 565 feet above sea level at the northern tip of Grand Island and the highest, 1,945 feet above sea level, is in Sardinia township, southeastern Erie County. On the basis of physiography the county may be divided into three parts: the flat Lake Tonawanda plain in the north, followed by the Lake Erie plain, and the Allegheny plateau in the south.

The Onondaga escarpment is a conspicuous topographic feature. This north-facing cliff, formed by the outcropping northern edge of the resistant Onondaga Limestone and Upper Silurian dolostone, can be traced from Buffalo eastward through Akron. In Erie County it seldom exceeds 40 feet in height. Some of the streams which cross the escarpment form waterfalls, but many of the smaller streams disappear in fissures and caves and reappear on the plain to the north.

Between the Onondaga escarpment and the parallel Niagara escarpment to the north is the Lake Tonawanda plain, so named because in late Pleistocene time it was occupied by now extinct Lake Tonawanda. This plain actually is a shallow east-west trending trough, 10 to 15 miles in width, which is drained along its axis by Tonawanda Creek.

The Lake Erie plain, so called because it was covered by glacial lakes ancestral to the present Lake Erie, is an area 6 to 12 miles in width between the Onondaga escarpment and the hilly region to the south. This plain is smooth or gently rolling and rises in elevation toward its southern border where much of it is 900 to 1,000 feet above sea level.

The southern third of the county lies within the maturely dissected Allegheny plateau, the northern border of which is sometimes referred to as the Lake Erie or Portage escarpment. The hilly topography of this region appears to be largely the result of stream erosion for there are no appreciable folds or faults. Glacial erosion has modified the shape of some of the larger valleys and has produced a general rounding of the topography. The amount of glacial drift is commonly so great as to obscure the topography of the underlying bedrock.

Erie County has no large lakes other than bordering Lake Erie. The major streams, all of which flow west or northwest into Lake Erie, are Tonawanda, Ellicott, Cayuga, Buffalo, Cazenovia, Eighteenmile, and Cattaraugus Creeks. Tonawanda Creek, part of which coincides with the Erie Barge Canal, flows over the flat bottom of extinct Lake Tonawanda. Ellicott Creek crosses the Onondaga escarpment at Williamsville where it forms a waterfall, as does Murder Creek at Akron. Cayuga, Buffalo, Cazenovia, and Eighteenmile Creeks flow northwest from the hills of the Allegheny plateau to the Lake Erie plain and cut post-glacial gorges which expose thick sections of Middle and Upper Devonian rock. Cattaraugus Creek flows essentially westward, part of it through the picturesque gorge known locally as Zoar Valley.

PLEISTOCENE GEOLOGY

Introduction

The surficial geology of Erie County consists largely of the effects of the Pleistocene glaciation (Fig. 2). The Pleistocene geology of western New York provides a fertile field for research, not only from the scientific viewpoint of understanding more of this last phase of geologic history, but also from the practical aspect of engineering geology and sand and gravel resources.

Following is a list of the glacial and interglacial stages of the Pleistocene Epoch. Although erosion by earlier glacial stages undoubtedly played a role in shaping the topography of Erie County, all the identified features date from the Wisconsin Stage, and a more detailed breakdown of that stage is provided. The most conspicuous of these features are the moraines deposited by the retreating ice sheet and the strand lines of the late Wisconsin lakes. Hough (1958, pp. 90 - 109) describes the subdivisions given below:

Wisconsin Glacial Stage
- Valders Substage
- Two Creeks Interval
- Mankato (Port Huron) Substage
- Cary Substage
- Tazewell Substage
- Iowan Substage
- Farmdale Substage

Sangamon Interglacial Stage

Illinoian Glacial Stage

Yarmouth Interglacial Stage

Kansan Glacial Stage

Aftonian Interglacial Stage

Nebraskan Glacial Stage

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