

ATTACHMENT

### 3.0 FACILITY DESCRIPTION

#### 3.1 SITE LOCATION AND DESCRIPTION

The CE Windsor Site is located in the Town of Windsor, Connecticut, eight miles north of Hartford, Connecticut (Figure 3-1). The entire Site consists of approximately 600 acres; however, this Decommissioning Plan only pertains to the area comprising Building Complexes 2, 5, and 17. These complexes are shown on Figure 3-2.

The CE Windsor Site is industrially zoned by the Town of Windsor, and is located in a Mixed Land Use area of Hartford County. Nearby land uses are primarily commercial, agricultural, industrial, and residential. Much of the northern and western portions of the property are wooded.

The Site is bordered by Day Hill Road and agricultural and commercial land to the south; tobacco fields and a sand and gravel quarry to the west; the Windsor/Bloomfield Sanitary Landfill and Recycling Center (Landfill) to the north; and forested land as well as residential and commercial developments to the east. The northwest corner of the property is bordered by the Rainbow Reservoir portion of the Farmington River. Within the property is a 10.6-acre enclave formerly owned by CE until 1960, known as S1C. This area is currently owned by the United States Government and is referred to as the former Knolls Atomic Power Laboratory (KAPL). This area has been decommissioned and demolished.

Surface water bodies on Site include: Great pond, located on the southwestern end of the property; Small Pond, located east of the Site buildings; Goodwin Pond; and the Site brook, both located on the northeastern portion of the property. The Site brook flows to the northwest from Goodwin Pond into the Farmington River at the northwest property boundary (Figure 3-2).

Approximately one-third of the property is developed with buildings, infrastructure, and maintained landscaping. The remaining two-thirds of the property is wooded, and may or may not have been disturbed by historic operations performed by either CE or previous owners. Parts of the wooded areas are known to have been excavated for fill, used to stage drums, and/or used as a historic disposal area.

Generally, the developed areas of the Site are mostly paved and/or landscaped and relatively flat. The wooded area along the northeastern portion of the property is less disturbed by Site development. There are several areas where historical operations have altered the land surface either by excavation and/or filling activities. The highest portion of the Site is approximately 210 feet above mean sea level (MSL). The Site topography drops to 98 feet above MSL along the banks of the Farmington River. Topographic contours are shown on Figure 3-2.

#### 3.2 POPULATION DISTRIBUTION

The Site is located mostly within a commercial and agricultural area, however residential properties are present within 1/4 mile of the site boundaries (Figure 3-3). The regional socioeconomic conditions for the area around the CE Windsor Site are discussed below.

The State of Connecticut's Hartford County is made up of 29 municipalities, including the Town of Windsor where the CE Windsor Site is located. According to the 2000 Census, the region population is about 23 percent minority. For this assessment, minority populations are

identified as those communities within the region where the percent of the minority population exceeds the average for the region (USDOE, 1996). There are three minority population centers in the region: the Towns of Bloomfield and Windsor, and the City of Hartford. Of the three, the largest percentage of minorities is in the City of Hartford.

Low-income populations are identified as those communities within the region for which the percent of the population living in poverty exceeds 25 percent (USDOE, 1996). According to the 1990 Census, about eight percent of the regional population is at or below the poverty level. This proportion is consistent with the state average of eight percent, estimated by the 2000 Census.

The population distribution within a 50-mile radius of the Windsor Site is shown on Figure 3-4. Table 3-1 summarizes the population distribution. Table 3-2 presents socio-economic factors for Hartford County and the Town of Windsor based on recent 2000 Census data.

According to the Connecticut State Department of Economic and Community Development, employment in the area totals about 19,215 positions divided between manufacturing (20 percent) and non-manufacturing (80 percent). The majority of the manufacturing jobs involve fabricating metals, aircraft, and machinery. The majority of the non-manufacturing jobs involve agriculture, wholesale trade, retail, financial, insurance, real estate, services, and government services (CTDECD, 1999). The most recent unemployment rate for the Town of Windsor was 3.1 percent in August 2001, slightly below Hartford County at 3.6 percent. (CTDOL, 2001). The Windsor Facility currently employs approximately 3,500 personnel (Flemming, 2001).

There are no known residences, schools, or day care centers within 200 feet of the CE Windsor Site. The nearest residences to the CE Windsor Site are located in Birchwood, north of the Farmington River (approximately 500 feet north of the Site). There are ten schools located within the Town of Windsor and one early childhood center. There are also several (15 or more) smaller parks and recreational areas within the Town of Windsor. Large recreational facilities include Pennwood State Park and Pine Hill Golf Club (both located within 2 miles of the CE Windsor Site).

Within this two-mile radius, approximately 600 people rely on public groundwater supply sources. Public water supply wells are located in East Granby Village (well numbers 1 and 2) and in Chelsea Commons (well numbers 1 and 2). These wells are located 1.8 miles and 1.9 miles, respectively, from the CE Windsor Site. Most of the people in the area are served by the Metropolitan District Commission (MDC) public water supply. Municipal water, however, is not available adjacent to the western portion of the Site on Beman Lane and on a portion of Tunxis Avenue from Beman Lane north to the Farmington River (Fuss & O'Neill, 1999). In addition, to the south and east of the Site, a few houses on Prospect Hill Road (near intersection of Silver Birch Lane and Day Hill Road), as well as all properties along Huckleberry Road are not served by the MDC and are inferred to use private wells (Fuss & O'Neill, 1999).

### 3.3 CURRENT AND FUTURE LAND USE

It is anticipated that future uses of the Site will be roughly consistent with its current use (commercial, light industrial uses). The current land use in the surrounding area is a mixture

of commercial, light industrial, warehousing, office park, residential, municipal landfill, and commercial farming. The land use is trending toward commercial and industrial uses.

Commercial farming of both consumable produce and tobacco does occur in the near vicinity of the CE Site. Such commercial farms are characterized as large fields that are planted with a single commercially viable crop (such as tobacco, corn, cucumbers, etc.) and is harvested in bulk and trucked to a commercial wholesale buyer for subsequent distribution. These farms do not support residential habitation or subsistence. Locally such farms are known as "truck" farms.

Future residential use of the land is considered unlikely given: 1) the current land-use trend; 2) the current community growth, planning, and development strategies of the local municipality; and 3) the economic value of the land for sustained commercial use. Although unlikely, it is reasonable and credible to consider that the land might be used for locating residential dwellings in the future.

Subsistence farming is also considered incredible at this Site because 1) the general population is moving away from subsistence farming, 2) the amount of land required to support subsistence farming is economically infeasible considering the value of the land, and 3) the population demographics are consistent with east coast urban/suburban uses.

### 3.4 GEOLOGY

The regional geology in Windsor is mapped within the Central Valley landscape of the Newark Terrain. The underlying bedrock is mapped as Portland Arkose and has been encountered at 90 and 120 feet below ground surface (bgs) at two locations at the Site. The overburden consists of quaternary deposits. The most pronounced feature is a dense till ridge, or drumlin, that trends north-south and is located in the middle of the Site. The southern end of the ridge is located near Building 6A, and the northern end of the ridge is located near the Greater Than 90 Day Storage Area. Weathered till outcrops at the ground surface, both behind Building 6A and in the woods near the Waste Pad area within the woods.

West of the ridge, the overburden consists of stratified sands and silts. These deposits become finer with depth and have been investigated to depths of approximately 120 feet bgs without encountering till or bedrock.

East of the ridge, the overburden consists of fine sands in silts to approximately 40 to 60 feet bgs. These deposits are underlain by ablation till that flanks the drumlin and pinches out to the east. In several borings, a coarse sand and gravel water-bearing zone was encountered at approximately 90 to 105 feet bgs. These coarse sands have been encountered within a soil unit that trends north-south and is located beneath Small Pond. This unit is not continuous to the east and west.

### 3.5 HYDROGEOLOGY

Based on topography and the regional and site geology, overburden groundwater is expected to flow generally toward the northwest and discharge to the Farmington River. However, on a smaller scale, local influences affect groundwater flow direction. These influences may include surface waters, buildings and paved areas, and local topography and geology. On a regional scale, groundwater flow is controlled by the regional topography. The Site is

located within the Farmington River watershed, which drains northeastward to the Connecticut River and eventually to the Atlantic Ocean.

In 1999, the Connecticut Department of Environmental Protection (CTDEP) approved a change in the classification of the groundwater under most of the site from Class GA to Class GB. This change in classification considers that the groundwater beneath the majority of the Site is not a present or future source for GA quality use, and that nearby groundwater, e.g., at the neighboring landfill to the north, is presently classified as GB (Figure 3-5).

Class GA is groundwater within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells. The Department presumes that groundwater in such areas is, at a minimum, suitable for drinking or other domestic uses without treatment.

Class GB is groundwater within a historically highly urbanized area or an area of intense industrial activity where public water supply service is available. Such groundwater may not be suitable for human consumption without treatment due to waste discharges, spills, or leaks of chemicals or land use impacts.

Groundwater beneath the site is encountered at approximately 15 to 20 feet bgs in the southern portions of the Site, and at approximately 45 feet bgs in the central, topographically high areas of the Site, and then at less than 5 feet bgs, as the ground surface slopes to the Site brook.

As mentioned above, shallow groundwater is expected to flow generally toward the northwest and discharge to the Farmington River. However, on a smaller scale, local influences affect groundwater flow direction. These influences include the till ridge, surface topography, and surface water bodies. Groundwater flows from the southwestern portion of the Site and is diverted around the till ridge to the east and west. To the west of the ridge, groundwater flows to the northwest towards the Farmington River. To the east of the ridge, groundwater roughly follows the surface waters from Small Pond to Goodwin Pond, then follows the Site brook to the Farmington River. Groundwater contours are shown on Figure 3-6.

### **3.6 SURFACE WATER HYDROLOGY**

There are several surface water bodies on or adjacent to the CE Windsor Site. The Farmington River flows along the northern boundary of the property (Figure 3-1). Goodwin Pond and the Site brook (unnamed) are located within the northern portion of the property. The Site brook flows from Goodwin Pond, then northwest to the Farmington River. Small Pond located northeast of Building 3, drains into Goodwin Pond via a well-defined drainage way. Great Pond, a glacial kettle-hole pond with no outlet, is located just inside the southwestern property border. Silver Birch Pond lies approximately 0.5 miles east of the property (USGS, 1984a; USGS, 1984b). Small streams located south of the property may influence groundwater contour shapes along the Site's southern property line.

According to the Water Quality Classification of Connecticut map, surface waters in Great Pond and Silver Birch Pond are Class A, Goodwin Pond and the Site brook are Class B/A, and the Farmington River is Class BC (CTDEP, 1991). Class A surface waters are known or presumed to meet water quality criteria that support designated uses. Class A defined uses include potential drinking water supplies, fish and wildlife habitat, recreational use, and

agricultural and industrial supplies. Class B surface waters are known or presumed to be suitable for fish and wildlife habitat, recreational use, and agricultural and industrial supplies. Class B/A surface waters may not be meeting water quality criteria for one or more Class A designated uses. Class BC surface waters are presumed to be suitable for supporting cold water fisheries (CTDEP, 1991).

With the exception of the southwestern section of the property, storm water runoff from the property flows into Small Pond, a small brook leading to Goodwin Pond, Goodwin Pond itself, and the Site brook. Surface drainage at the southwest end of the property flows toward Great Pond, where there is also an infiltration collection system that receives overflow from Great Pond during periods of high water. Great Pond has no other apparent outlet (USGS, 1984b), and likely maintains its level mainly through interaction with groundwater.

The Site brook flows into the Farmington River on the northwestern property boundary. The Farmington River subsequently flows into the Connecticut River approximately 10 river miles downstream from the CE Windsor Site (USGS, 1984a; USGS, 1984b).

The closest designated fishery to the property is the Farmington River, bordering the CE Windsor Site to the northwest, as listed in the 1992 State of Connecticut Angler's Guide (Weston, 1992). As part of the CTDEP effort to restore Atlantic salmon to the Connecticut River and selected tributaries, juvenile salmon are released into the Farmington River each spring (Weston, 1992).

### 3.7 ECOLOGY/ENDANGERED SPECIES

There are no known extant populations of Federal or State Endangered or Threatened Species that occur at the Site. Based on information received from the State of Connecticut Department of Environmental Protection there is one freshwater mussel species of special concern, *Ligumia nastuta*, Eastern pond mussel, which occurs in close proximity to the Site.

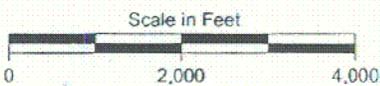
Also, based on information obtained from the State of Connecticut Department of Environmental Protection, the Farmington River has been stocked with Atlantic salmon (*Salmo salar*) as part of the State and Federal Atlantic salmon restoration effort.



Quadrangle Location



Map Source: USGS Map, Windsor Locks, Conn  
Dated 1964, Photorevised 1984.



**FIGURE 3-1**  
**SITE LOCATION MAP**  
**DECOMMISSIONING PLAN**  
**CE WINDSOR SITE**  
**WINDSOR, CONNECTICUT**

 **MACTEC Constructors, Inc.**  
A MACTEC COMPANY

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C01

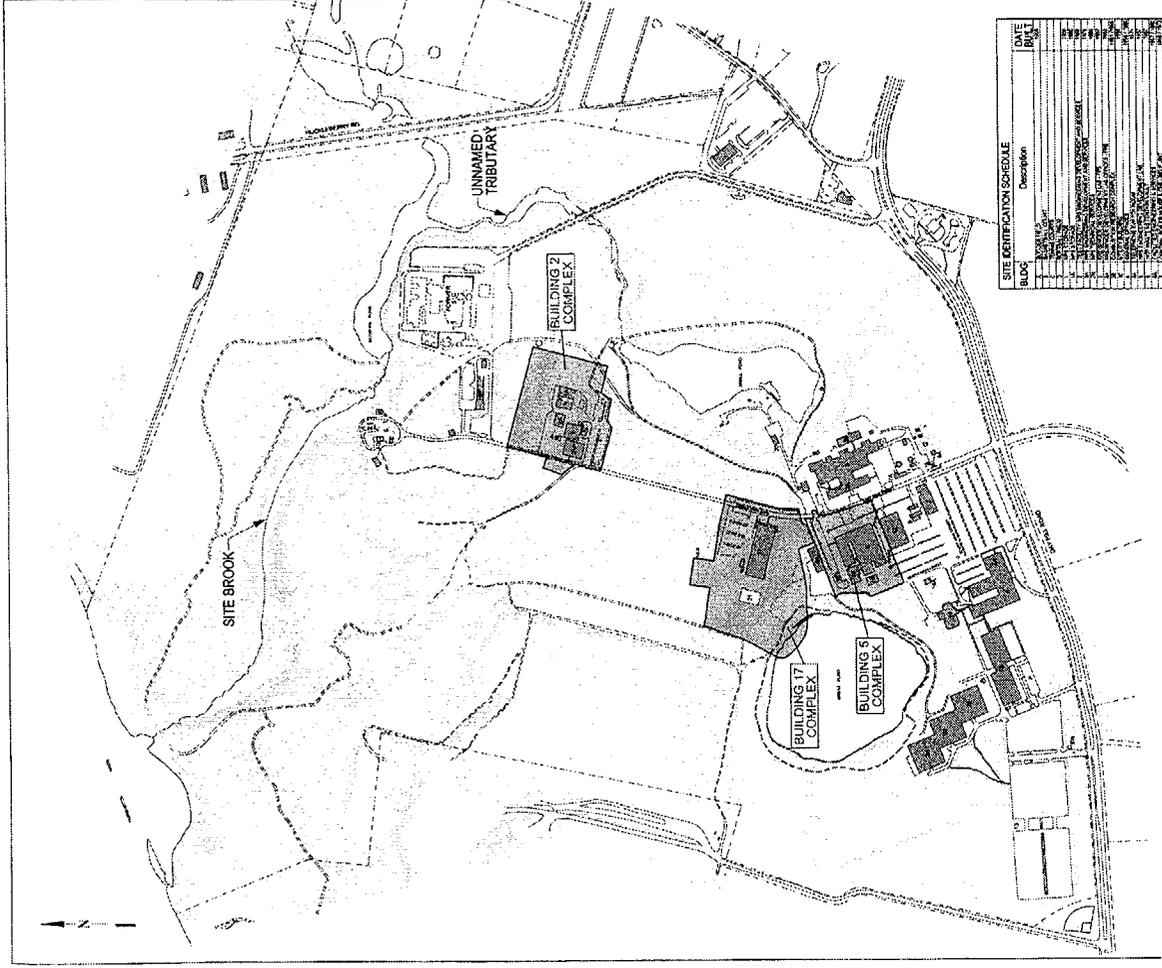


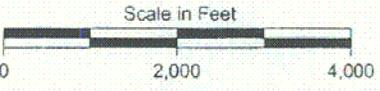
Fig. 3.2



- Legend**
-  Residential
  -  Public
  -  Industrial



Map Source: USGS Map, Windsor Locks, Conn  
 Dated 1964, Photorevised 1984.

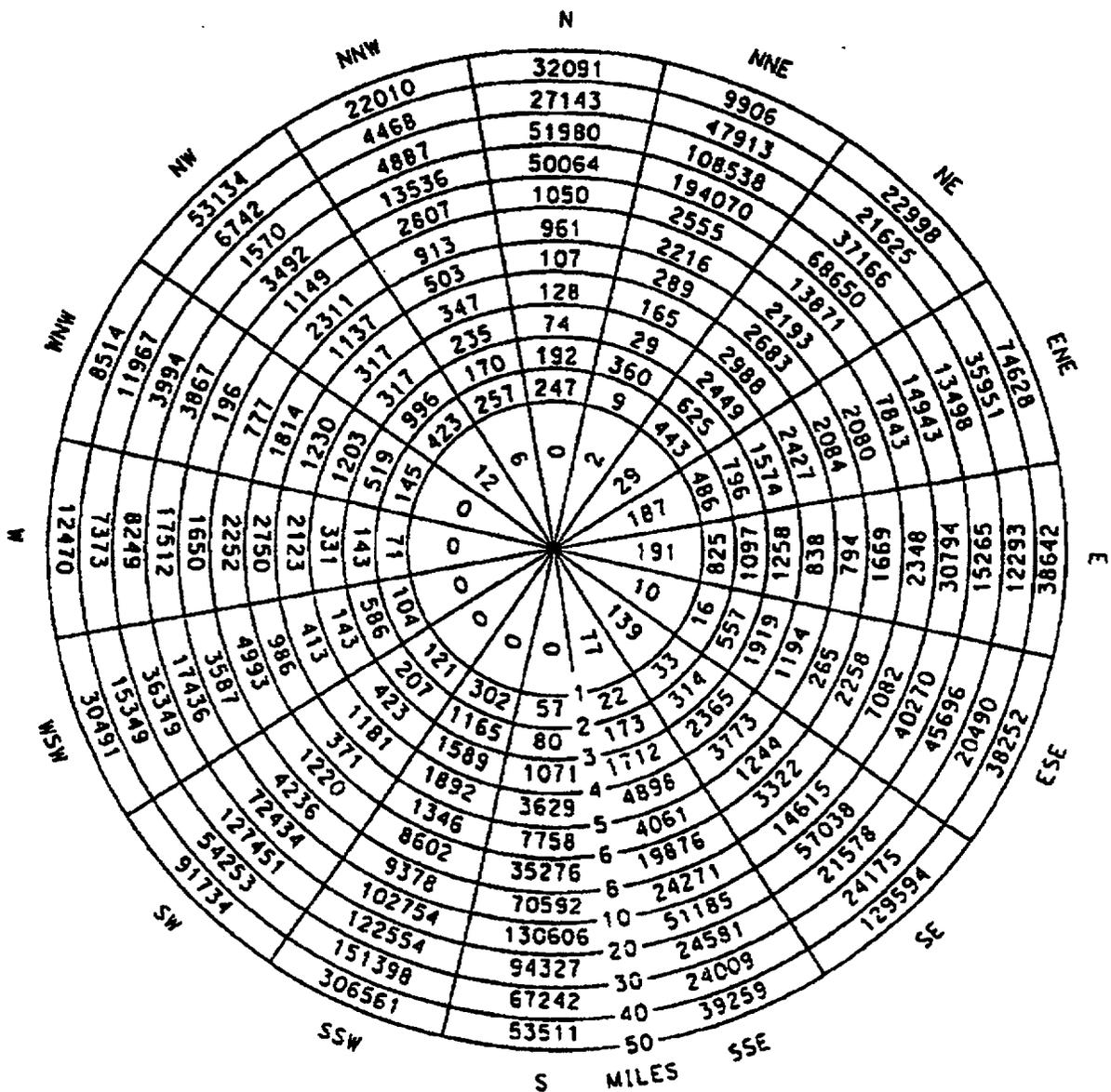


**FIGURE 3-3**  
**SURROUNDING LAND USE**  
**DECOMMISSIONING PLAN**  
**CE WINDSOR SITE**  
**WINDSOR, CONNECTICUT**

 **MACTEC Constructors, Inc.**  
 A MACTEC COMPANY

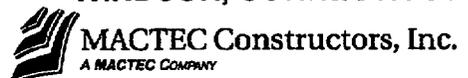
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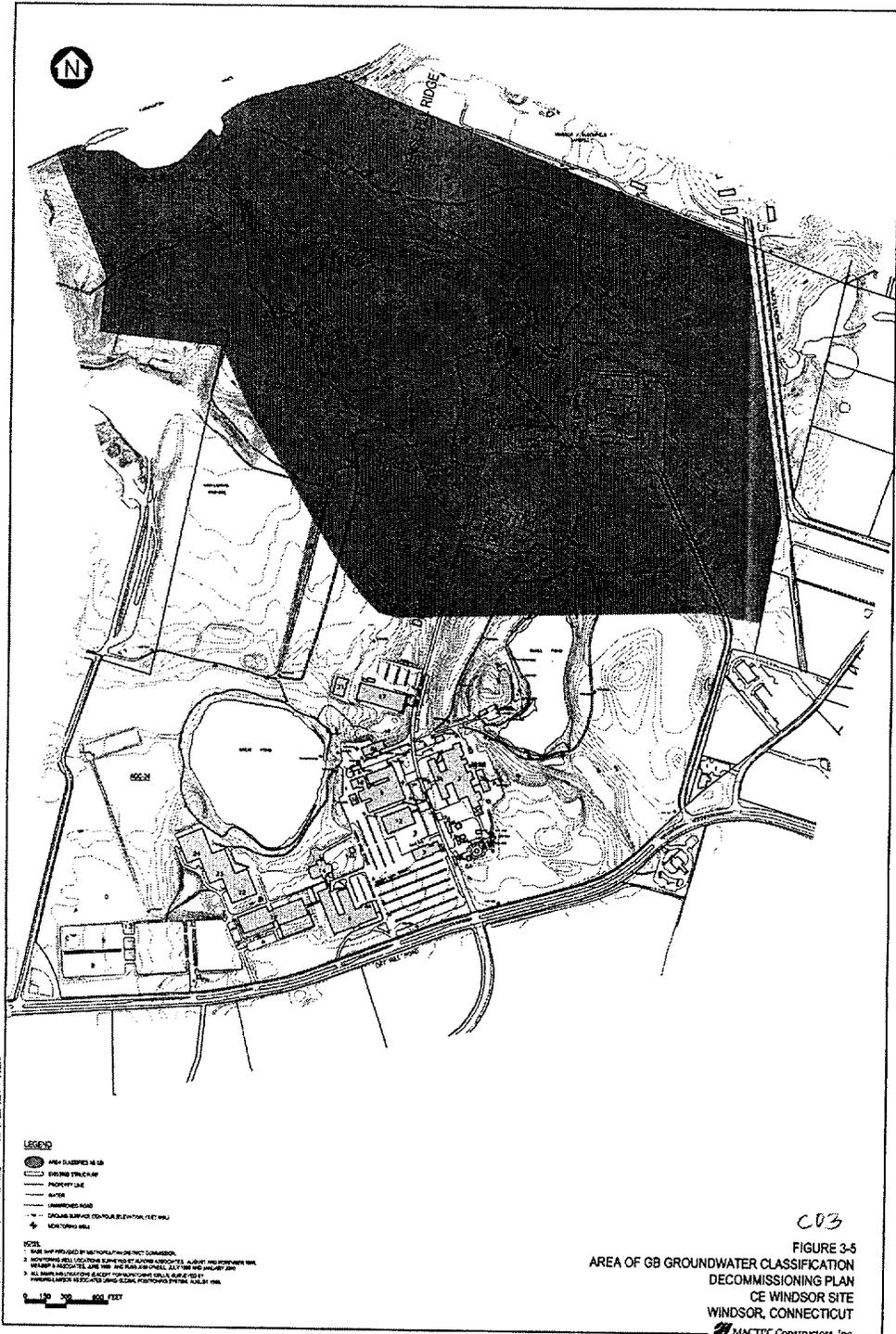
C02



Source: U.S. Department of Energy, Office of Naval Reactors. Environmental Impact Statement, SIC Prototype Reactor Plant Disposal, Volume 1 of 2, November 1996.

**FIGURE 3-4**  
**1990 POPULATION DISTRIBUTION WITHIN A 50-MILE RADIUS**  
**DECOMMISSIONING PLAN**  
**CE WINDSOR SITE**  
**WINDSOR, CONNECTICUT**





- LEGEND**
- AREA CLASSIFIED AS GB
  - ▨ EXISTING STRUCTURE
  - PROPOSED LINE
  - ROAD
  - UNIMPROVED ROAD
  - CIRCULAR SURFACE CONTROL/RETENTION FLEX WALL
  - ★ MONITORING WELL

**NOTES**

1. THIS MAP WAS PREPARED BY MACTEC CONSULTANTS, INC.
2. MONITORING WELL LOCATIONS SHOWN ARE SUBJECT TO CHANGE AND SHOULD BE VERIFIED BY THE CLIENT AND APPROVED BY THE STATE OF CONNECTICUT. THE PLAN IS BASED ON THE DATA PROVIDED BY THE CLIENT AND APPROVED BY THE STATE OF CONNECTICUT.
3. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
5. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.



C03

**FIGURE 3-5**  
**AREA OF GB GROUNDWATER CLASSIFICATION**  
**DECOMMISSIONING PLAN**  
**CE WINDSOR SITE**  
**WINDSOR, CONNECTICUT**  
 MACTEC Constructors, Inc.

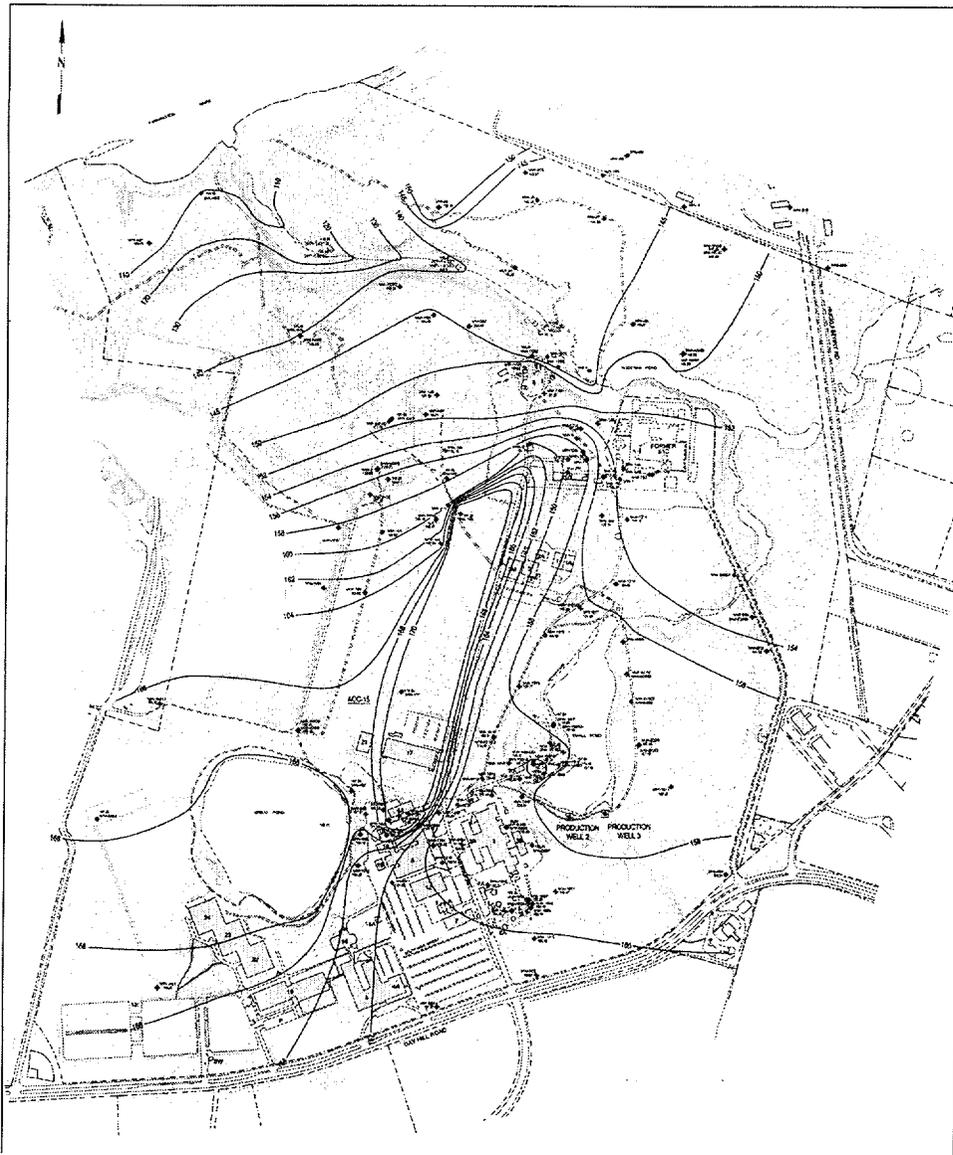


Fig. 3-6

**Table 3-1**  
**Population Distribution Within A 50-Mile Radius**  
**Of The Ce Windsor Site**

<b>Miles</b>	<b>People</b>	<b>Cumulative People</b>
0 to 5	56,429	56,429
5 to 10	286,341	342,770
10 to 20	868,651	1,211,421
20 to 30	717,683	1,929,104
30 to 40	532,391	2,461,495
40 to 50	963,795	3,425,290

**Notes:** Authorized use:

Source: U.S. Department of Energy, Office of Naval Reactors. Environmental Impact Statement, S1C Prototype Reactor Plant Disposal, Volume 1 of 2, November 1996.

**Table 3-2  
Socioeconomic Factors For The  
Town Of Windsor And The Hartford Region**

	<b>Town of Windsor</b>	<b>Hartford County</b>
Geographic Area (square miles) <sup>1</sup>	29.6	735.5
Population <sup>2</sup>	28,237	857,183
White Population <sup>2</sup>	18,387	659,192
African American Population <sup>2</sup>	7648	99,936
Asian Population	887	20,775
Hispanic Population <sup>2</sup>	1405	98,968
Other Race Population <sup>2</sup>	643	57,481
Population Density (persons/square mile, 1998) <sup>1</sup>	930.1	1121.6
Civilian Labor Force (1997) <sup>1</sup>	14,534	421,856
Average Individual Per Capita Income (1998) <sup>1</sup>	\$24,694	\$24,032
Percentage Unemployment (1997) <sup>1</sup>	5.0	5.6

\* Population figures may add up to more than the total population because individuals may report more than one race.

Sources:

1. Town of Windsor Data: Connecticut State Department of Economic and Community Development, Connecticut Town Profiles 1998-99; 2000.
2. U.S. Census Bureau, Census 2000 Redistricting (Public Law 94-171) Summary File Matrices PL1, PL2, PL3, PL4.