3

Cardinal®

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FIGURES

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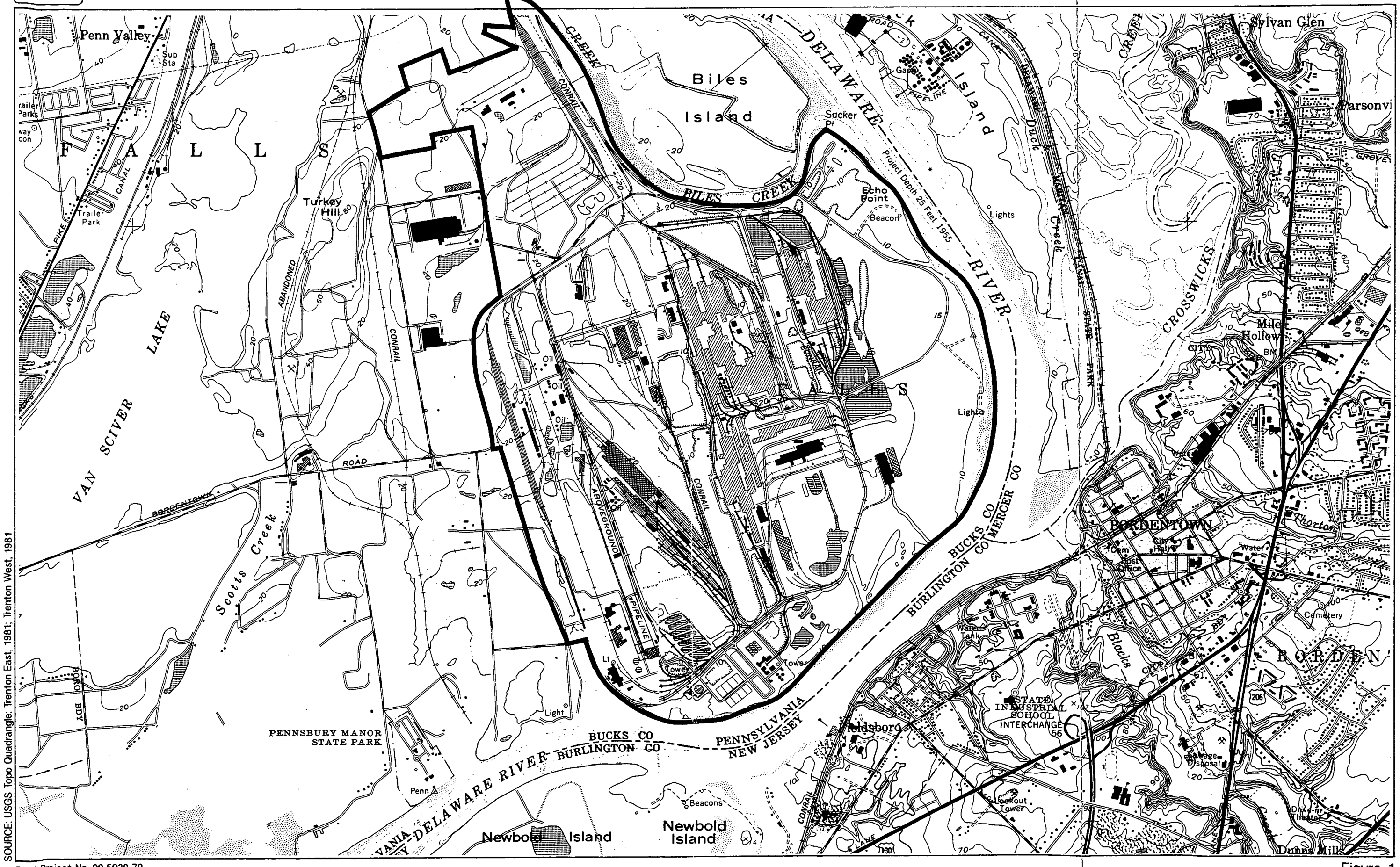
U.S STEEL



SOURCE: USGS Topo Quadrangle: Trenton East, 1981; Trenton West, 1981

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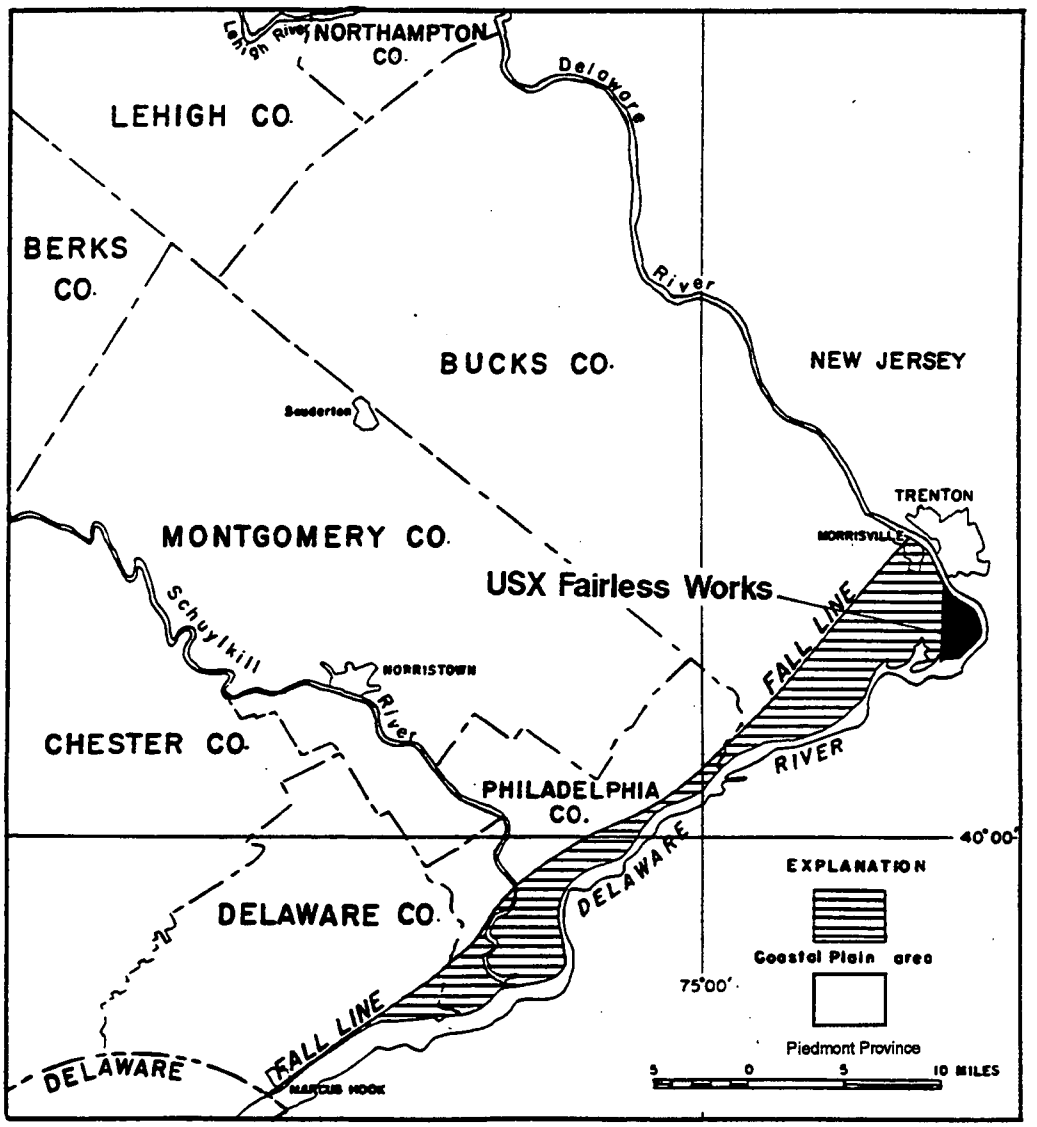
0 2000 FT

NORTH

Figure 1

Geographic Location, Fairless Works



SOURCE: Greenman, et. al., 1961

Physiographic provinces are shown in Pennsylvania only.

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0 10 MILES

NORTH

Figure 2

Physiographic Location, Fairless Works

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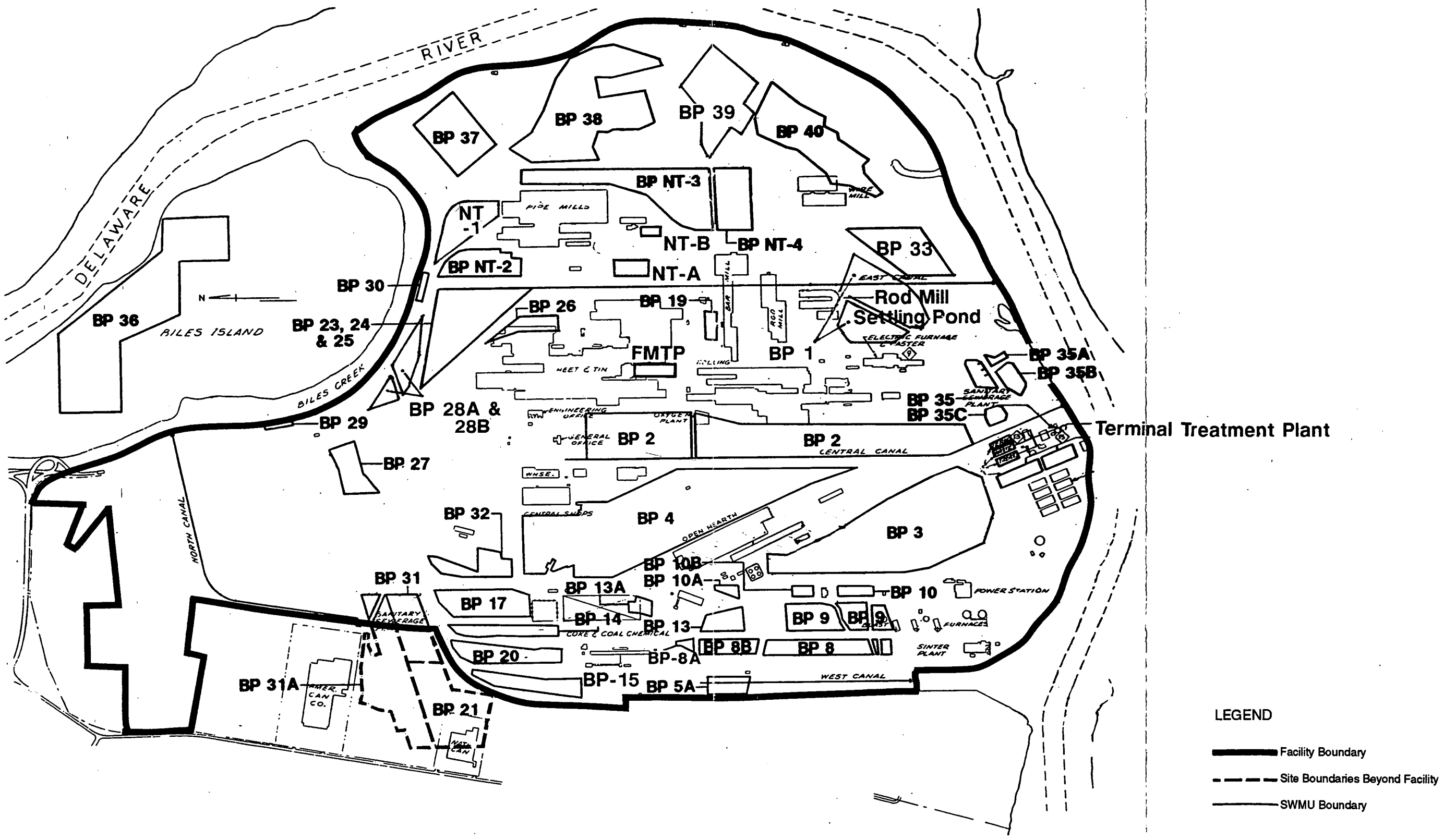

SOURCE: United States Steel Corporation, 1972

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0 1500 FT

NORTH

Figure 3

Site Location Map, Fairless Works
Fairless Hills, Pennsylvania

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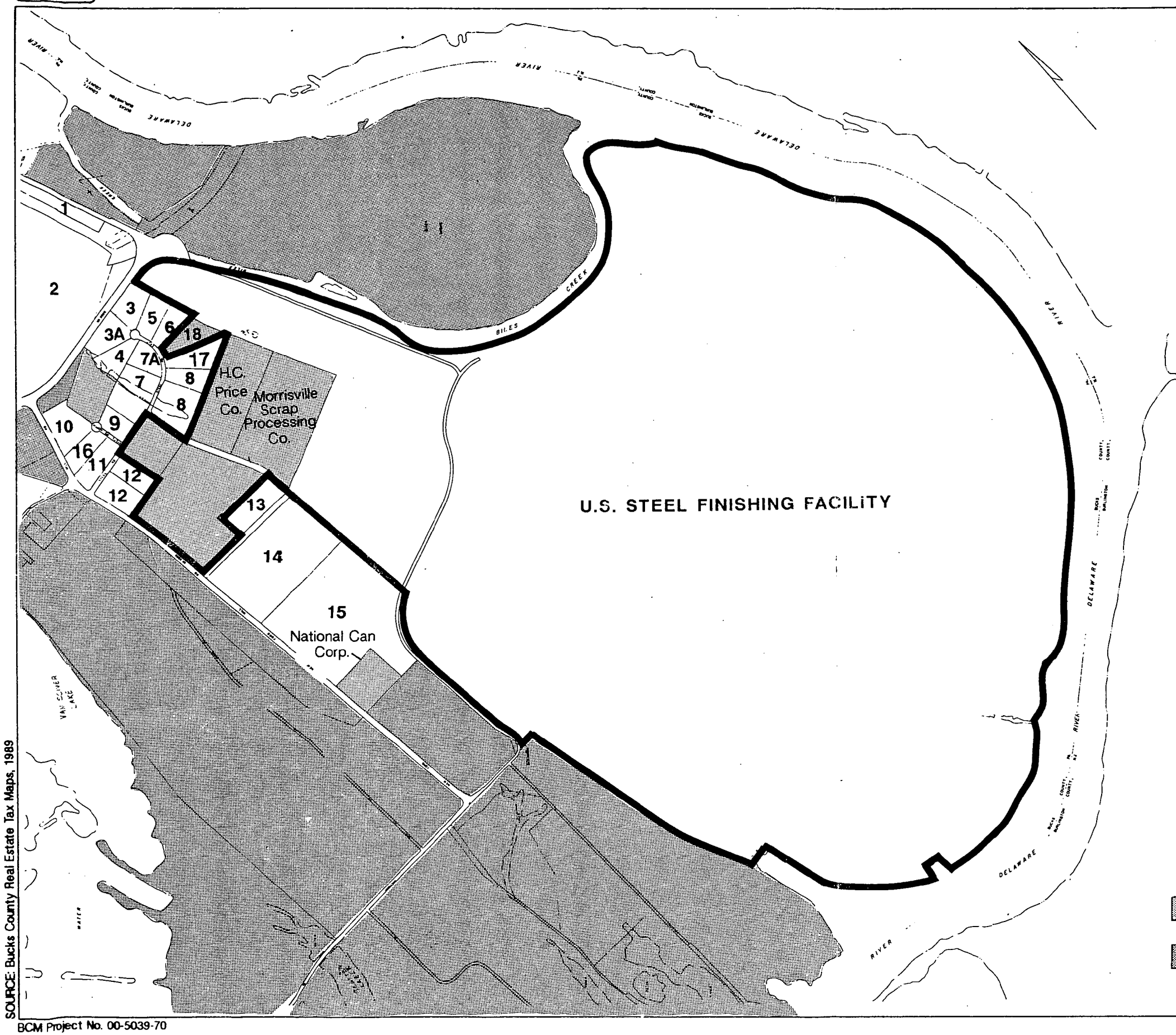

KEY

1 American Transfer Freight
2 Penn Warner Company
3 Hartwell Warehousing
3A Ghering Montgomery
4 Nooter Construction
5 Maran Equipment
6 Technochem Environmental
7 Betz Corporation
7A Pacesetter Steel Warehouse
8 Messier Crasheim Industries
9 Eastern Chemical Waste Systems
10 Maris Corporation
11 Anvil Construction
12 LAI Prop. Ltd.
13 Pre-Finish Prior Coated Metals Inc.
14 Blue Chip Products (formerly American Can Co.)
15 Wheelabrator Environmental Systems
16 Universal Wire & Cloth
17 Reber Trucking
18 Chemcentral Corporation

Areas owned by **U.S. Steel**

Areas owned by Waste Management Inc.

SOURCE: Bucks County Real Estate Tax Maps, 1989

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Figure 4

Property Boundaries and Adjacent Land Uses, Fairless Works

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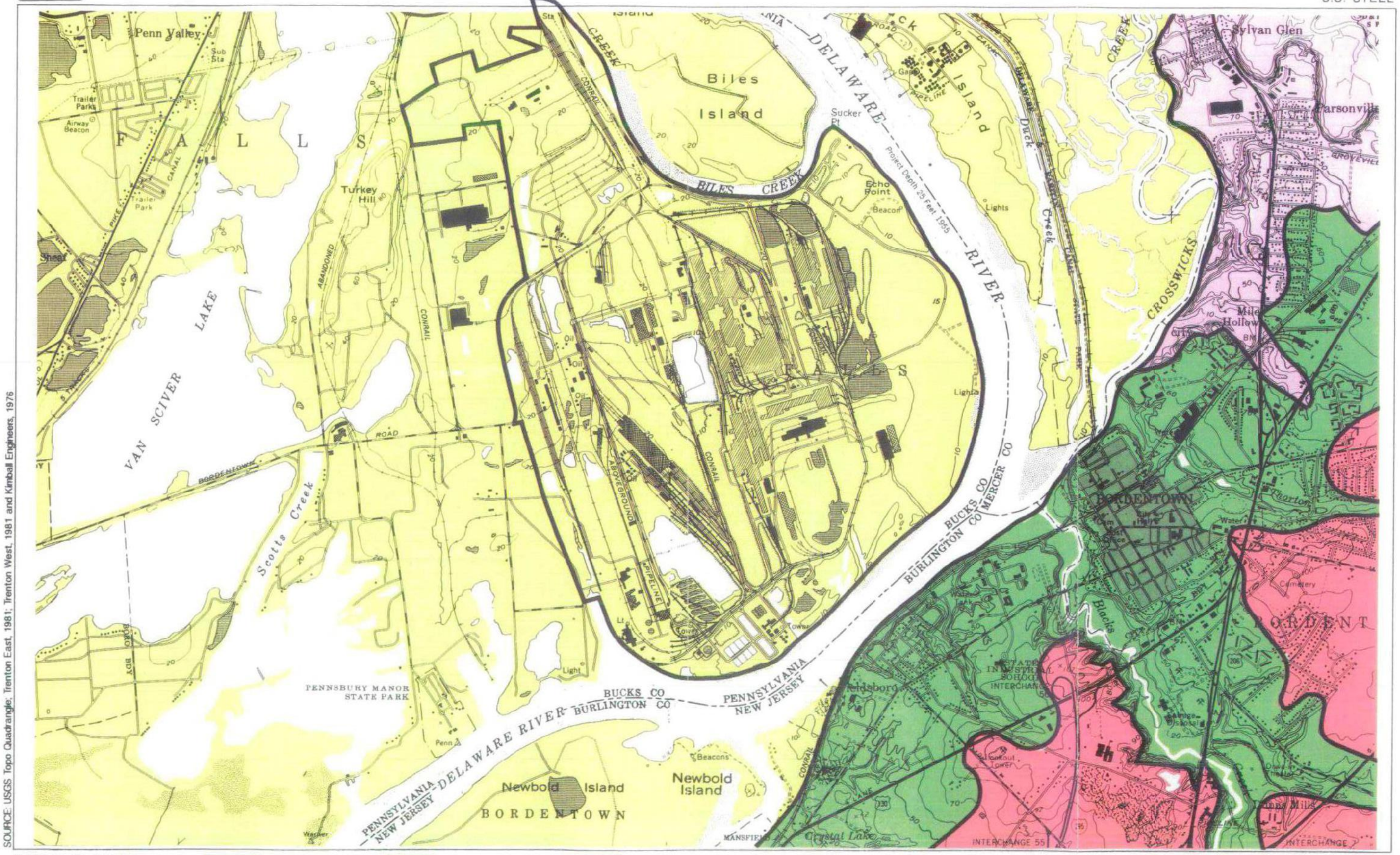

SOURCE: USGS Topo Quadrangle; Trenton East, 1981; Trenton West, 1981 and Kimball Engineers, 1976

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0 2000 FT

Raritan Formation

Magothy Formation

Merchantville Formation

Woodbury Clay

Geologic Contact

Figure 5

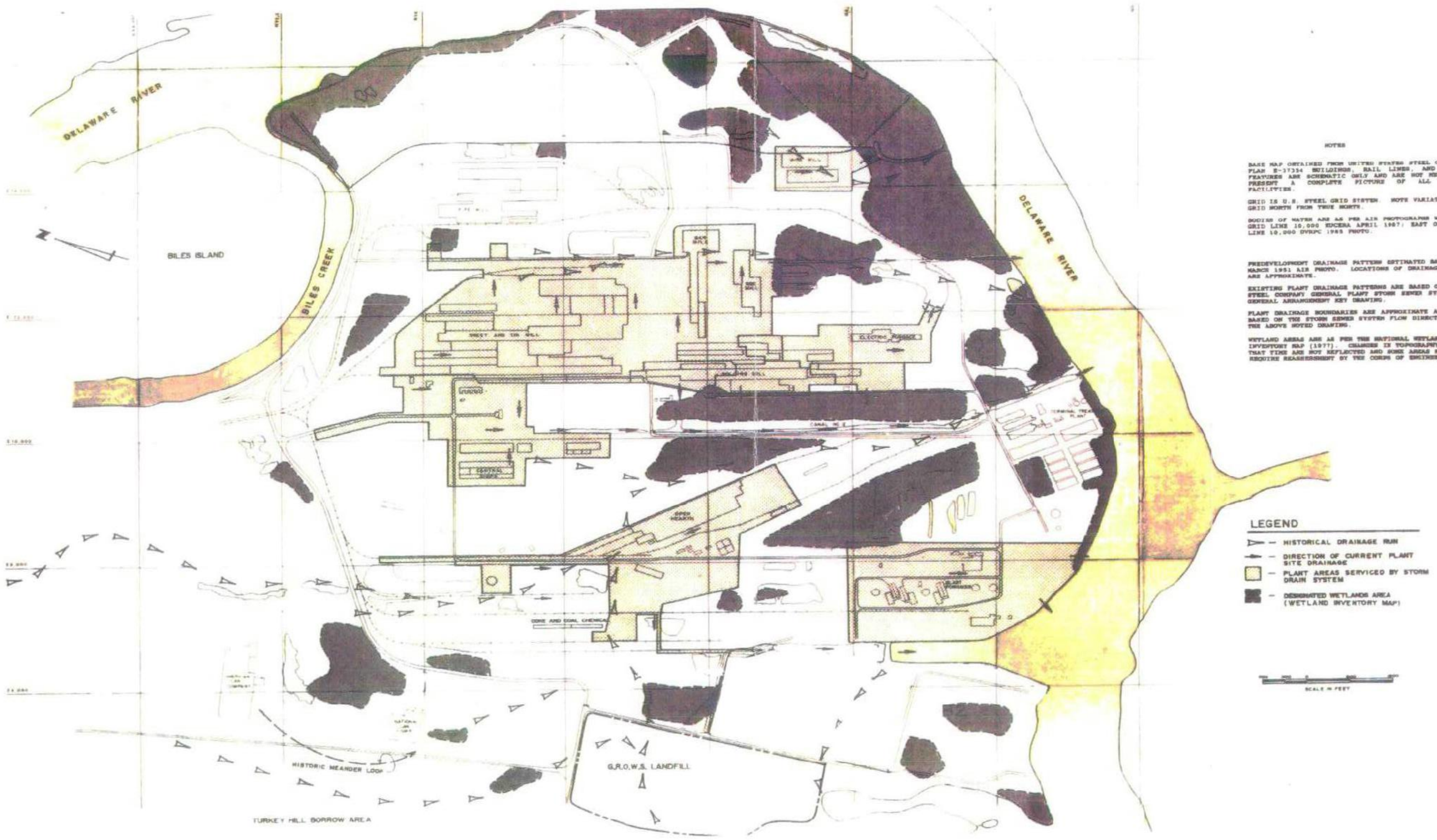
Geologic Map, Fairless Works and Vicinity

ERA	SYSTEM	SERIES	FORMATION & MEMBER	MAXIMUM THICKNESS	PHYSICAL CHARACTERISTICS	WATER-BEARING CHARACTERISTICS
CENOZOIC	QUARTERNARY	Recent	Alluvium	72	Flood plain and channel deposits of clay, silt, sand and some gravel.	Not important as a source of ground water; generally less permeable than underlying deposits; impedes the movement of water into and out of surface streams.
			---- Unconformity ----			
		Pleistocene	Cape May Formation (Illinoian)	80	Chiefly gray and brown sand and gravel; some silt; little clay. Cape May unweathered. Pennsauken deeply weathered.	An important source of ground water in southeast Bucks County. Contains highly permeable sand and gravel beds which yield large quantities of water to wells. Favorably situated with respect to recharge; subject to surface contamination.
			---- Unconformity ----			
			Pennsauken Formation (Illinoian)			
			---- Unconformity ----			
MESOZOIC	CRETACEOUS	Upper Cretaceous	Magothy Formation	10	Medium to coarse gray sand with plant remains.	Unimportant as a source of water in Pennsylvania owing to its small aerial extent.
			---- Unconformity ----			
			Upper Clay Member	35	Chiefly red, white, gray and yellow clay. Also brown and blue clay; silty, sandy and pebbly in places.	Acts chiefly as a confining bed.
			---- Unconformity ----			
			Raritan Formation: Old Bridge Sand Member	55	Chiefly brown, gray, white and yellow sand with some gravel; containssome clay and silt in Bucks County.	An excellent aquifer; forms an extensive water table aquifer inter-connected with the Pleistocene sediments. Generally not tapped by wells in areas where it occurs beneath an upper confining bed.
			--- Unconformity ---			
			Raritan Formation: Middle Clay Member	60	Chiefly red and white clay; also gray, yellow, blue and brown clay; sandy in places.	An extensive confining bed.
			--- Unconformity ---			
			Raritan Formation: Sayreville Sand Member	49	Chiefly brown, yellow, white and gray sand and gravel; little clay.	Generally not tapped by wells. Potentially an important aquifer in Bucks County.
			--- Unconformity ---			
			Raritan Formation: Lower Clay Member	61	Chiefly red clay, also gray, blue, white and brown clay; sandy in places. (Absent at USX Fairless)	An extensive confining bed.
			--- Unconformity ---			
			Raritan Formation: Farrington Sand Member	87	White, yellow, gray and brown sand and gravel; some white clay. (Absent at USX Fairless)	The principal source of ground water in the Philadelphia area. Yields from 500 to 1000 gpm to wells in South Philadelphia.
			--- Unconformity ---			
PALEOZOIC?	PRE-ORDIVICIAN?	Glenarm	Crystalline Rocks	?	Mica schist capped by residual weathered clay.	Poor aquifer in the Coastal Plain area; contains some ground water in secondary fractures; average yield less than 50 gpm.

SOURCE: Greenman, et. al., 1961

Figure 6

Generalized Geologic Column of the Coastal Plains of Southeastern Pennsylvania



NOTES

BASE MAP OBTAINED FROM UNITED STATES STEEL COMPANY PLAN E-37334. BUILDINGS, RAIL LINES, AND OTHER FEATURES ARE SCHEMATIC ONLY AND ARE NOT MEANT TO PRESENT A COMPLETE PICTURE OF ALL STEEL FACILITIES.

GRID IS U.S. STEEL GRID SYSTEM. NOTE VARIATION OF GRID NORTH FROM TRUE NORTH.

BODIES OF WATER ARE AS PER AIR PHOTOGRAPHS WEST OF GRID LINE 10,000 EXCEPT APRIL 1967; EAST OF GRID LINE 10,000 DVRPC 1985 PHOTO.

PREDEVELOPMENT DRAINAGE PATTERN ESTIMATED BASED ON MARCH 1951 AIR PHOTO. LOCATIONS OF DRAINAGE RUNS ARE APPROXIMATE.

EXISTING PLANT DRAINAGE PATTERNS ARE BASED ON U.S. STEEL COMPANY GENERAL PLANT STORM SEWER SYSTEM - GENERAL ARRANGEMENT KEY DRAWING.

PLANT DRAINAGE BOUNDARIES ARE APPROXIMATE AND ARE BASED ON THE STORM SEWER SYSTEM FLOW DIRECTION IN THE ABOVE NOTED DRAWING.

WETLAND AREAS ARE AS PER THE NATIONAL WETLANDS INVENTORY MAP (1977). CHANGES IN TOPOGRAPHY SINCE THAT TIME ARE NOT REFLECTED AND SOME AREAS MAY REQUIRE REASSESSMENT BY THE CORPS OF ENGINEERS.

SOURCE: Golder Associates, 1987

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NORTH

Figure 7

Surface Hydrology and Wetland Areas, Fairless Works

Figure 8 **Historical Aerial Photograph**

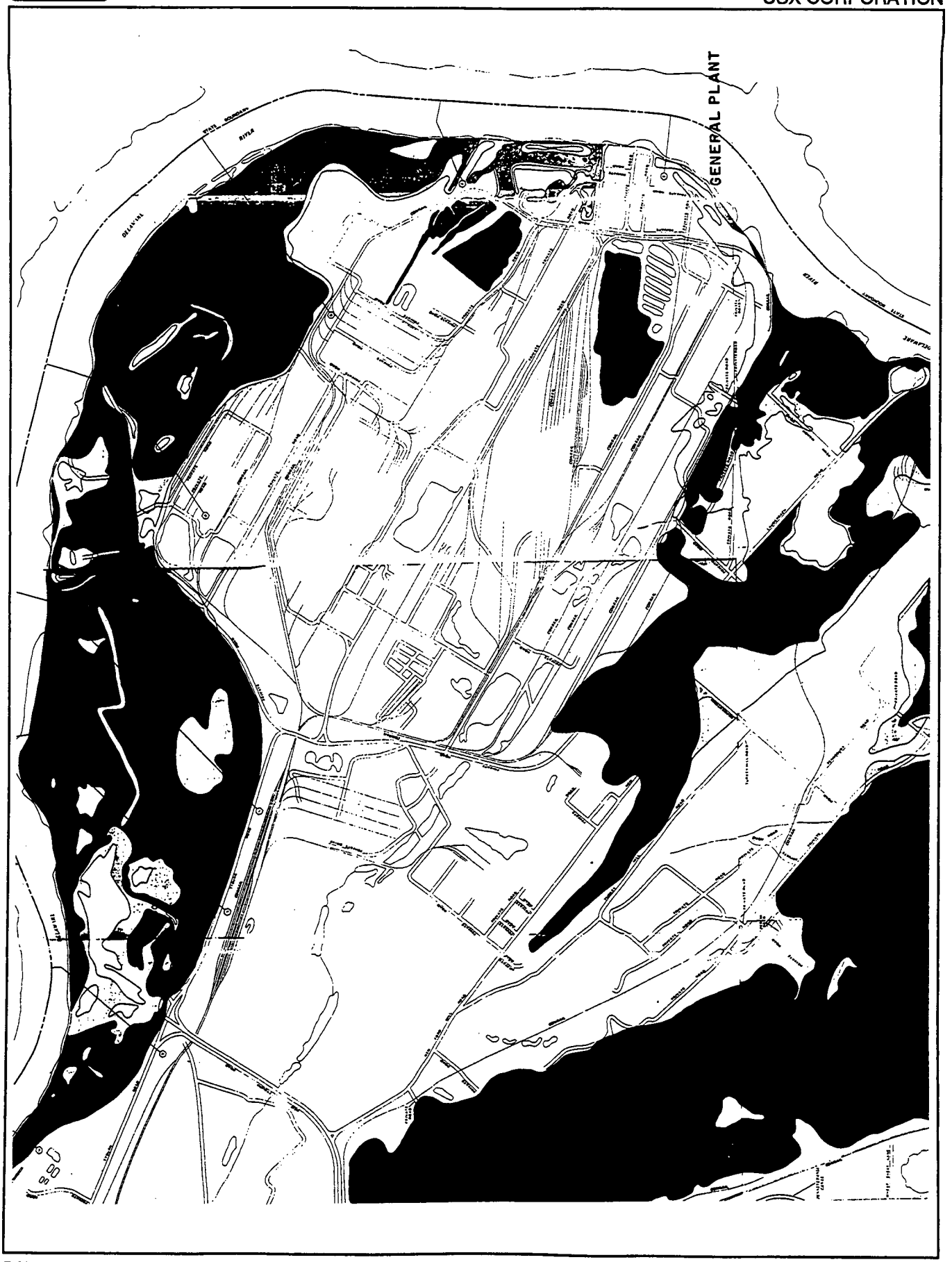

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Figure 9

Flood Boundary Map, Fairless Works

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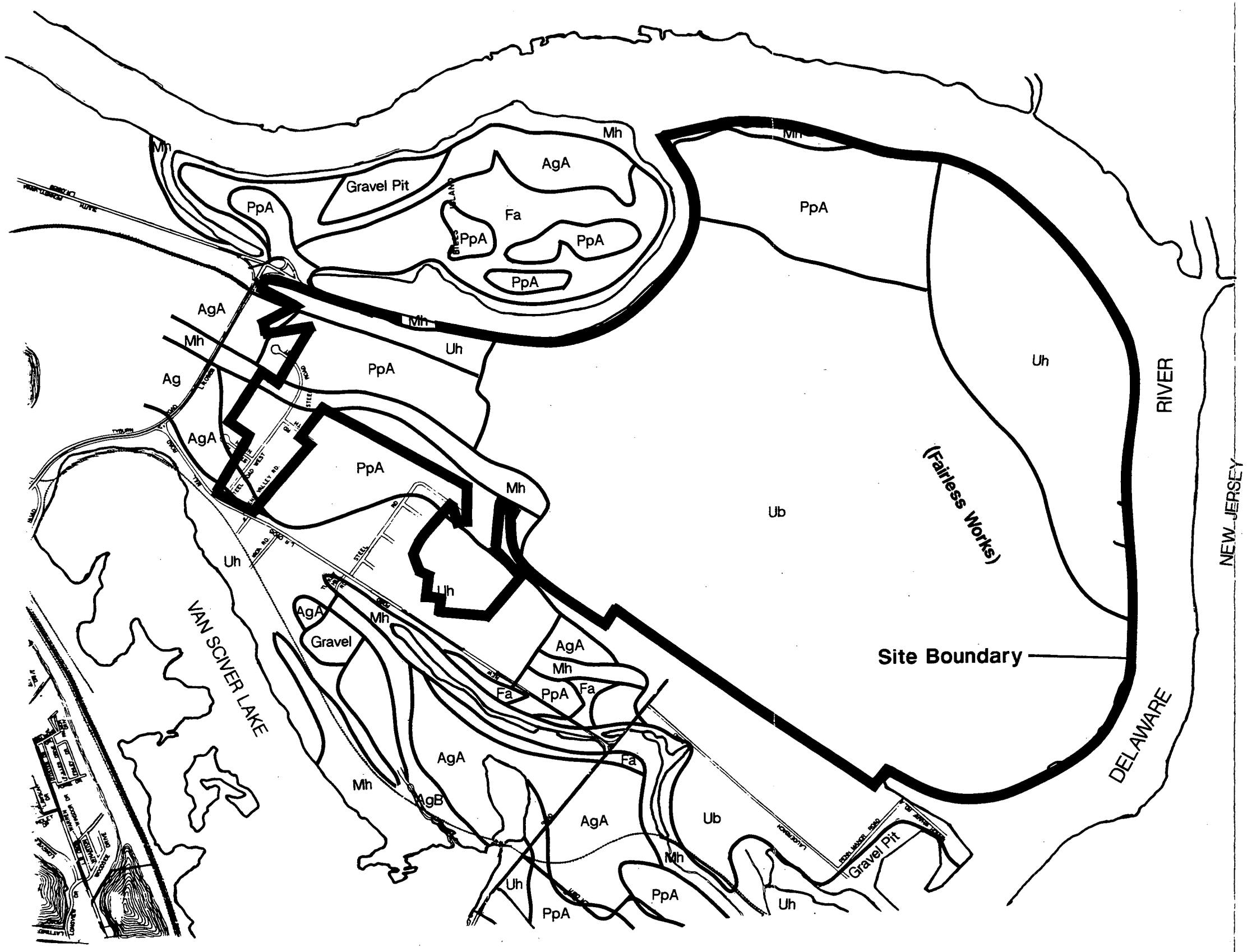

LEGEND

AgA	Alton Gravelly Loam (0-3% slopes)
AgB	Alton Gravelly Loam (3-8% slopes)
Fa	Fallsington Silt Loam
Mh	Marsh
PpA	Pope Loam
Uh	Urban Howell Complex
Ub	Urban Land

SOURCE: USDA Soil Survey of Bucks and Philadelphia Counties Pennsylvania, 1971; Zoning Map of Falls Township, Bucks County, PA

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0 2400 FT

NORTH

Figure 10

Soil Map, Fairless Works

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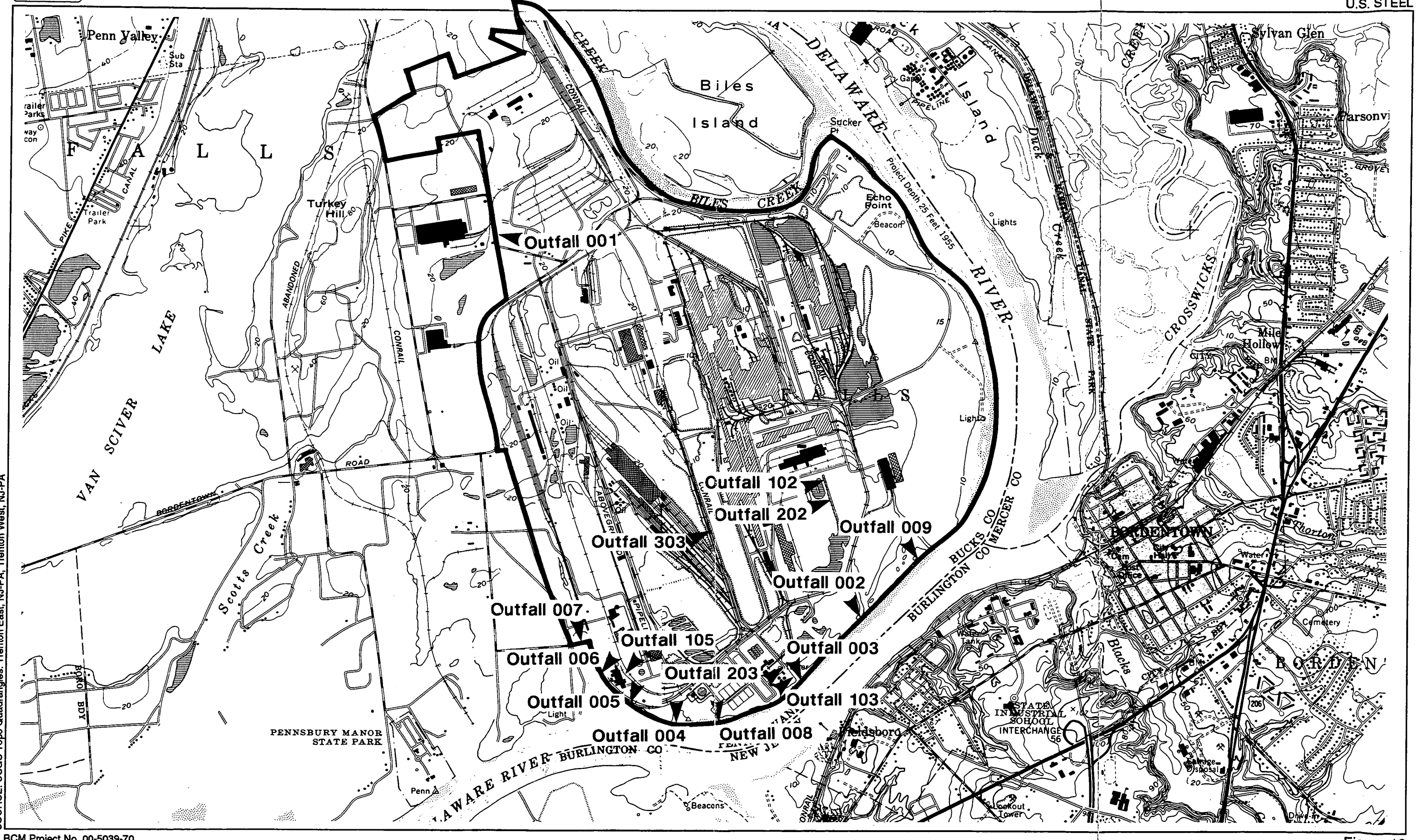

SOURCE: USGS Topo Quadrangles: Trenton East, NJ-PA; Trenton West, NJ-PA

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0 2000 FT

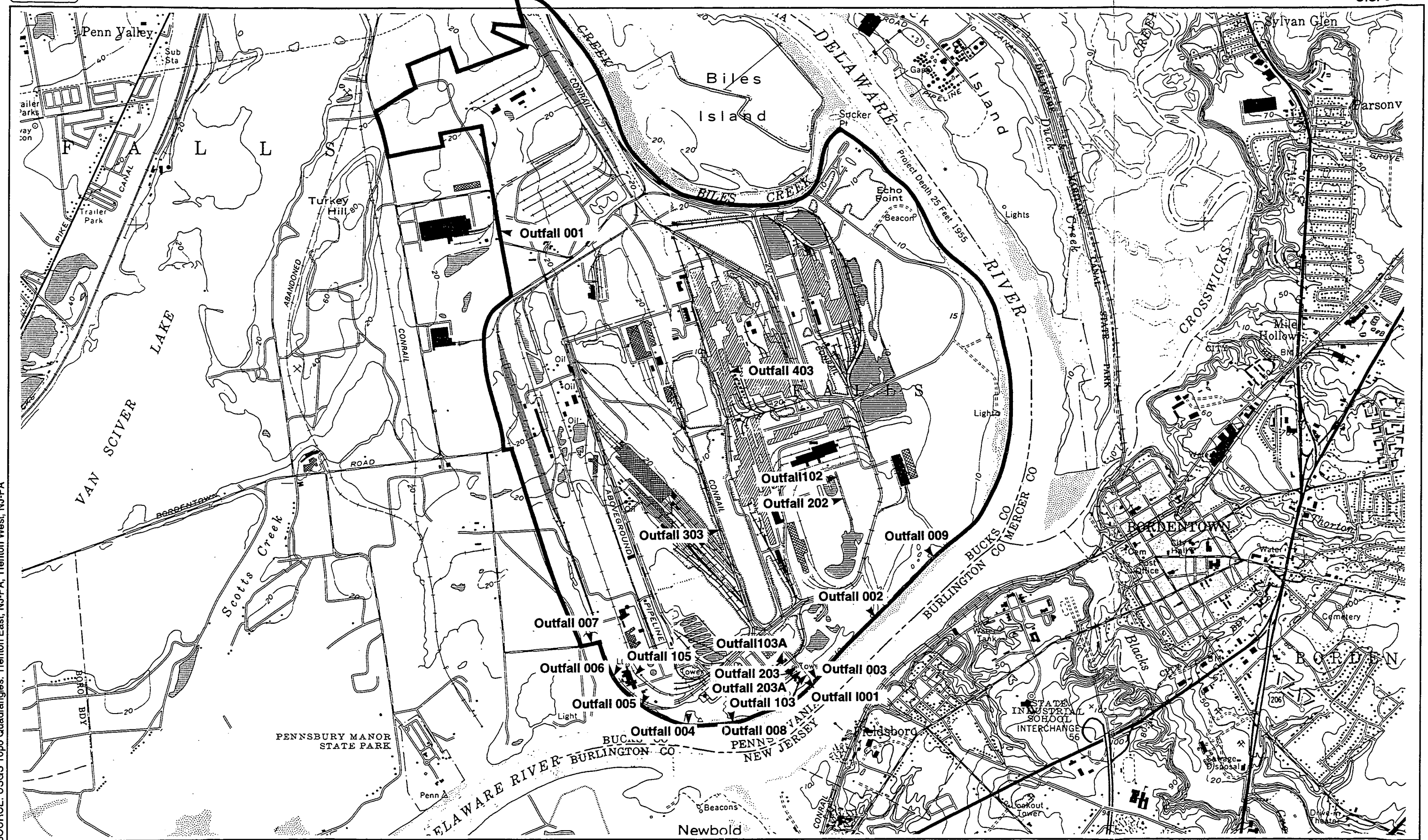
NORTH

Figure 12

Outfalls, Fairless Works

BCM

U.S. STEEL



SOURCE: USGS Topo Quadrangles: Trenton East, NJ-PA, Trenton West, NJ-PA

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0 2000 FT

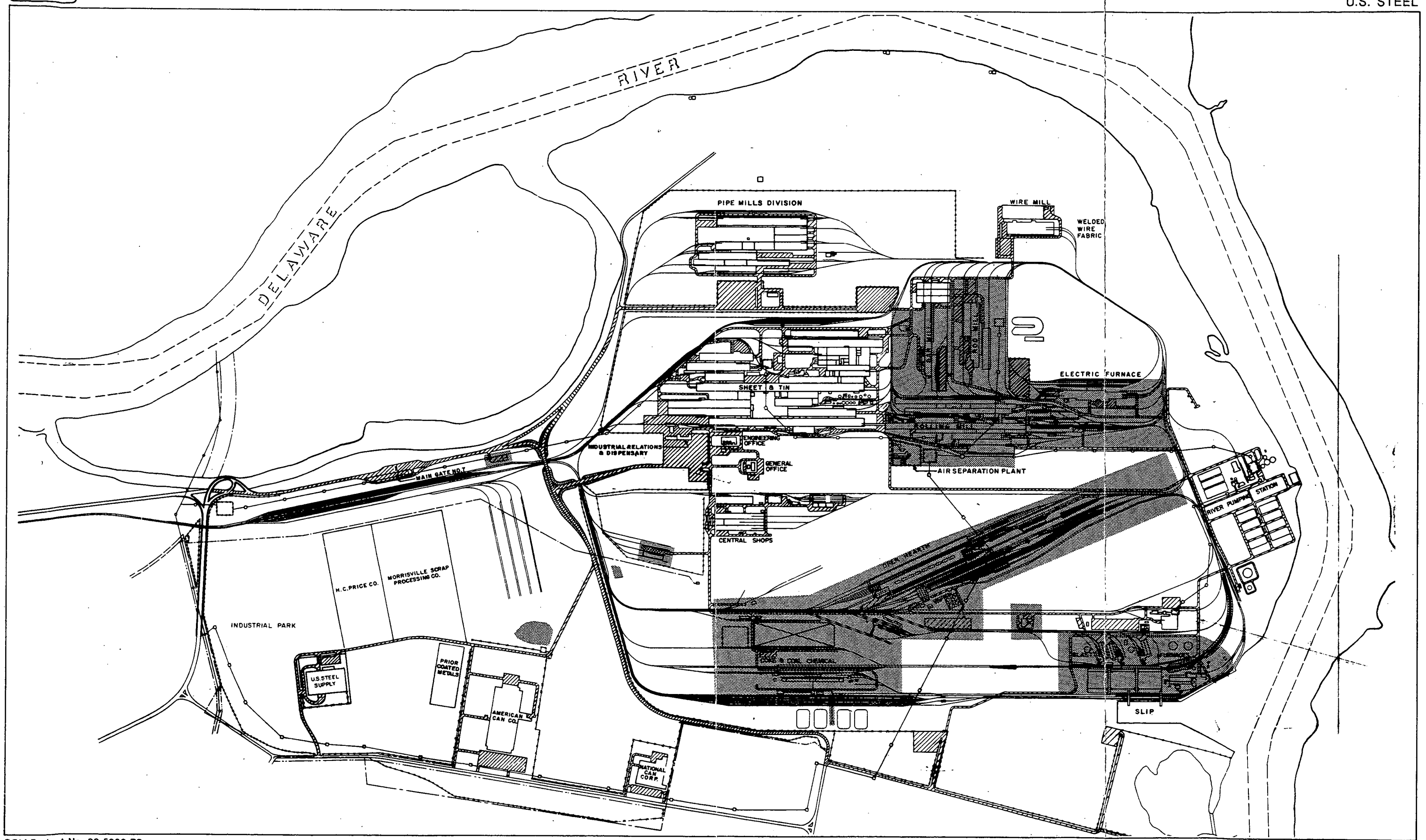
NORTH

Figure 12

Outfalls, Fairless Works

BCM

U.S. STEEL



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0 1600 FT.

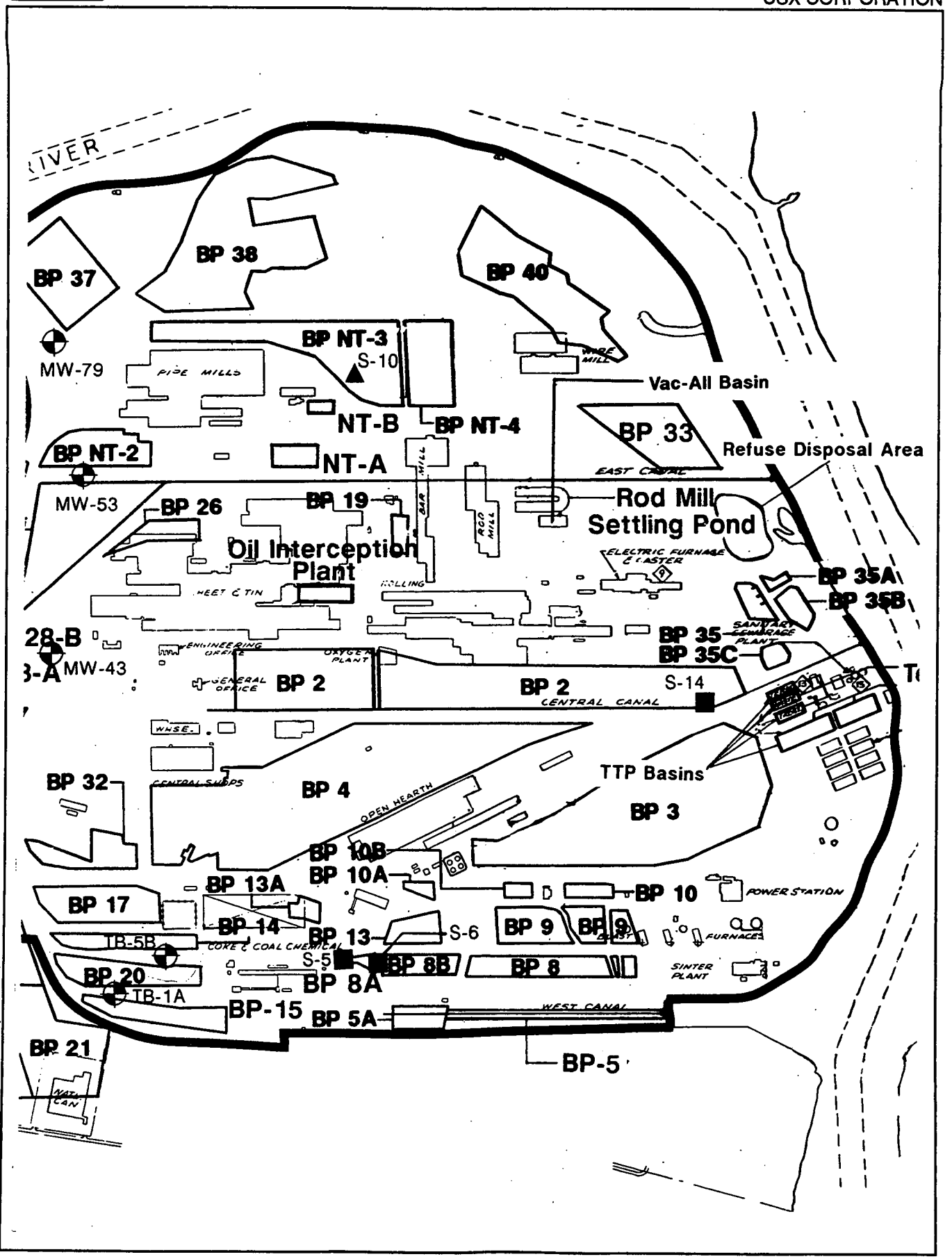
NORTH

Legend

Demolition Areas

Figure 13

Demolition Areas



SOURCE: United States Steel Corporation, 1972

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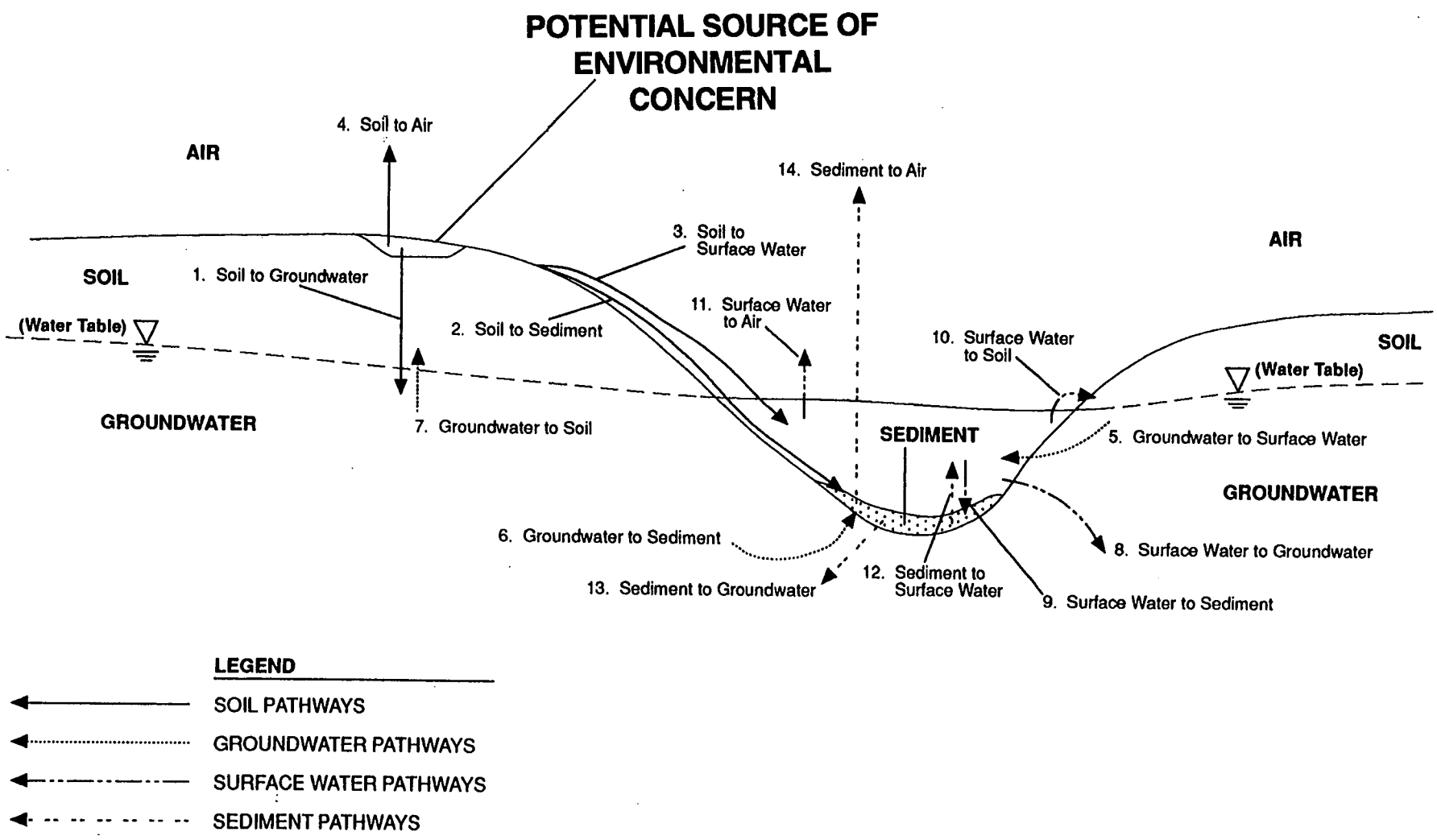
0 1500 FT

NORTH

Figure 14

Location of Miscellaneous Items



SOURCE: BCM Engineers Inc.

BCM Project No. 00-5039-70

Figure 15

Schematic Diagram of Potential Contaminant Migration Pathways

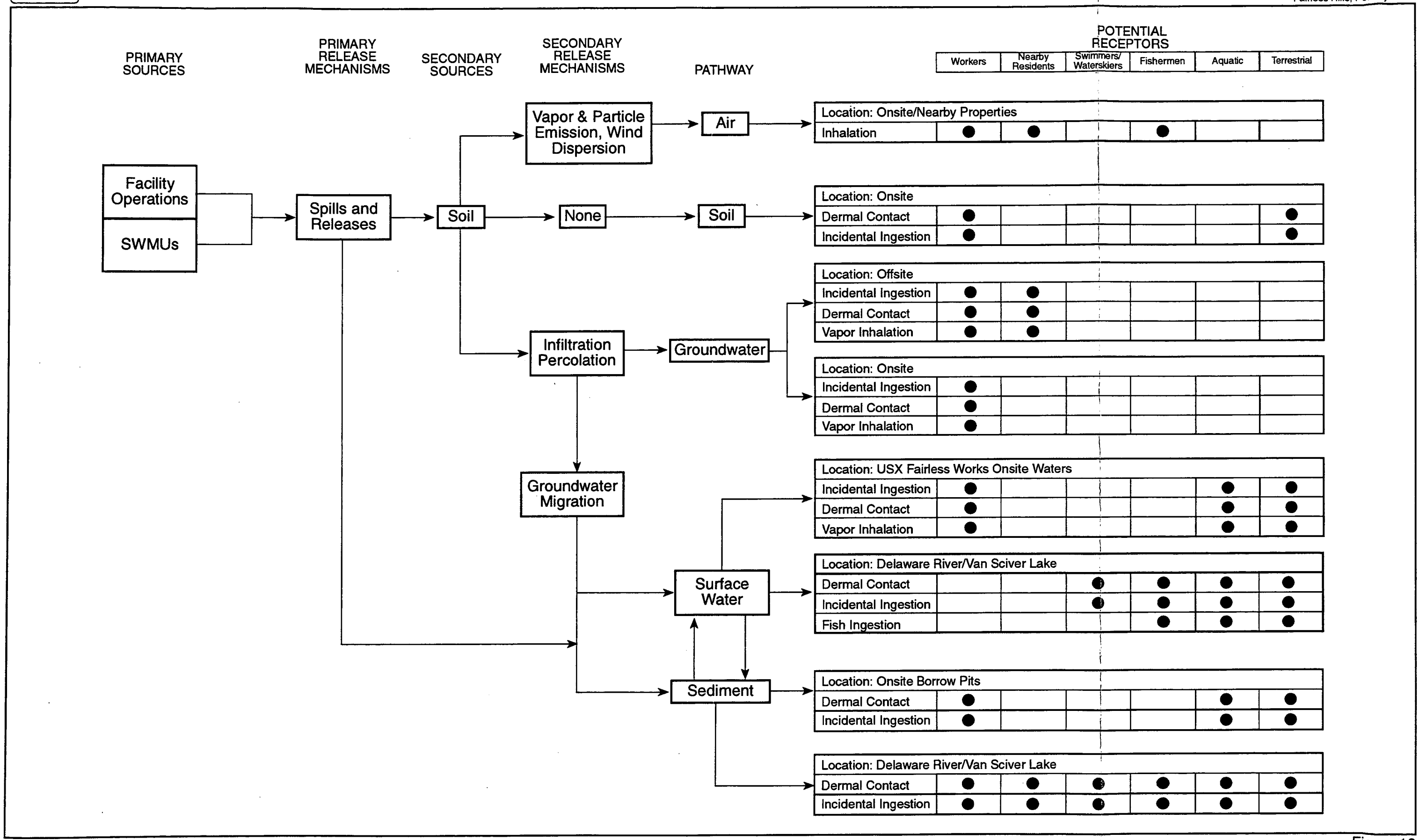


Figure 16
Conceptual Site Model
Fairless Works
Current and Potential Future Conditions