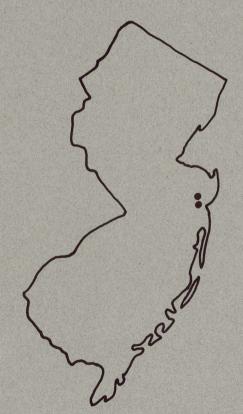
December 1993 ERI-02-001-93

ERI Aerial Photographic Site Analysis

Evans Area
Charles Wood Area
Fort Monmouth, New Jersey

Prepared for

United States Army Environmental Center



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Aerial Photographic Site Analysis Evans Area Charles Wood Area Fort Monmouth, New Jersey

by

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Contract No. DACA31-93-P-1516

Prepared for:
U.S. Department of Army, Army Environmental Center
Aberdeen Proving Ground, MD

INTRODUCTION

The 1993 Base Closure Commission has recommended, and the President has approved, that Base Realignment and Closure (BRAC) actions occur at Fort Monmouth, New Jersey. The recommendations are to dispose of excess property at Fort Monmouth. This excess property consists of the Evans Area and housing units located at the Charles Wood Area of Fort Monmouth. The U.S. Department of the Army, Army Environmental Center (AEC) has been assigned the responsibility for conducting the environmental evaluation and restoration portion of the Base Closure program. The following report prepared by Environmental Research. Incorporated will support the AEC by providing an analysis of historical aerial photography of the Evans Area (EA) and the Charles Wood Area (CWA) of Fort Monmouth, New Jersey. This analysis was conducted to document past activities in an effort to identify potential environmental contamination from past or current operations.

The EA and CWA are two non-contiguous subposts of Fort Monmouth in Monmouth County, New Jersey. The study areas are illustrated on Figures 1 and 11 and are keyed to U.S. Geological Survey (USGS) 1:24,000-scale topographic maps.

Aerial photography of the study areas was obtained for the period 1940 to 1991. An attempt was made to locate and describe "known or suspected waste materials" and "landfills" at the EA and CWA previously documented in Installation Assessment of Fort Monmouth, Report No. 171, May 1980, prepared by the U.S. Army Toxic & Hazardous Materials Agency (USATHAMA). In addition, other potential contamination sources discernable from the aerial photography were noted and described. Due to the dense concentration of buildings in the central portion of the EA, many of the radiological sites as depicted on Figure 9 in Report 171 could not be precisely located on the aerial photography. For purposes of this analysis, the EA has been divided into four areas (AREA A, B, C, and D). Significant findings are annotated on photographic print enlargements and discussed for each year of aerial photography analyzed.

For the CWA, Site numbers 1-8 correspond to those sites previously identified in Report No. 171. The sludge dump also identified in the report has been given the designator of Site 9. Site P10 refers to a photo identified site discovered during this analysis. P10 is a probable debris disposal area noted at the CWA from 1947 to 1991.

¹Installation Assessment of Fort Monmouth, Report 171, May 1980, USATHAMA, pp. 23, 25, 37, 38.

Potential environmentally significant findings noted during this aerial photographic analysis include excavations, ground scarred and/or disturbed ground, staining, debris disposal, fill areas and open storage areas. A glossary of terms is provided in the Appendix which defines features as they appear on aerial photography. A wetlands and surface drainage was performed for the EA and the CWA using color infrared aerial photography.

Ground reconnaissance was conducted on December 16, 1993 at the CWA and for portions of the EA. The results of the ground truth visit are included with the 1991 aerial photo analysis.

METHODOLOGY

A search of government and commercial sources was undertaken to obtain the best available aerial photography of the study area spanning the period from 1920 to the present; however, the first year of available aerial photography was 1940. The photography and other sources of information used in this report are listed in the Reference section.

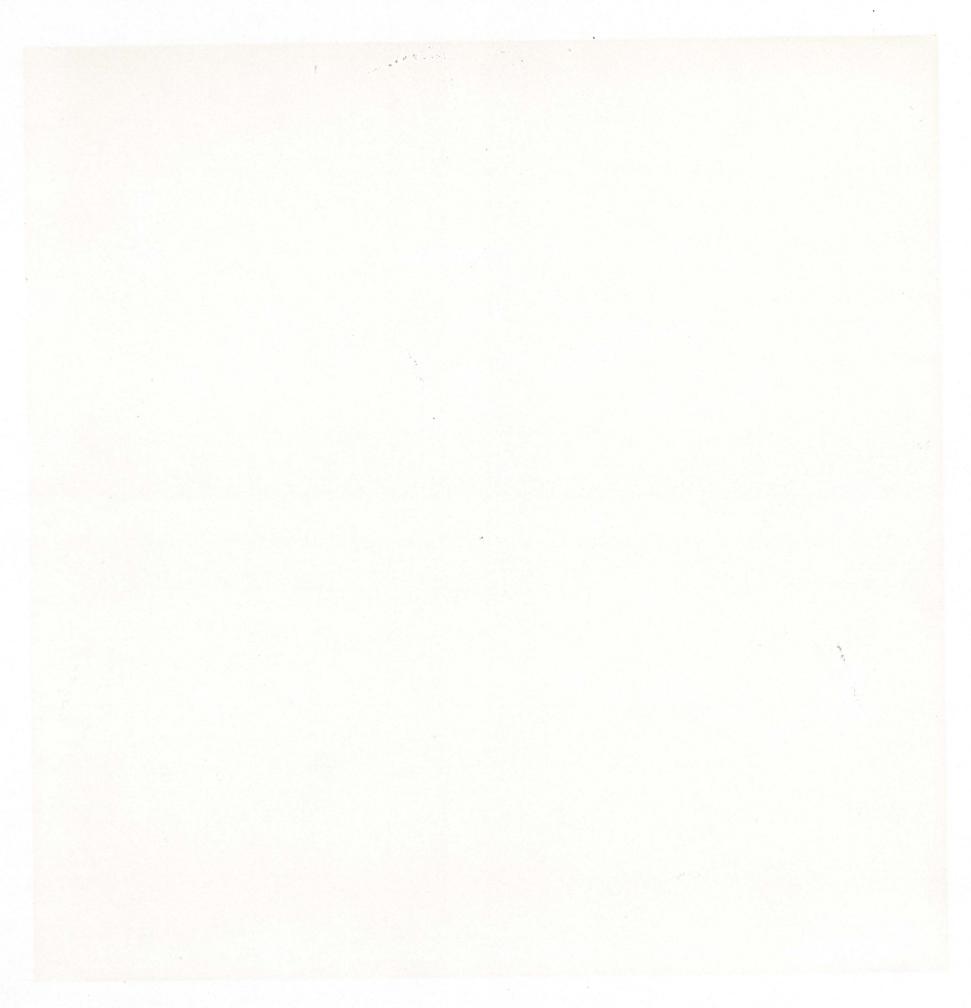
The analysis was performed by viewing illuminated transparencies of aerial photography through stereoscopes. Stereoscopic viewing creates a perceived three-dimensional effect which, when combined with viewing at various magnifications, enables the analyst to identify signatures associated with different features and environmental conditions. The term "signature" refers to a combination of visible characteristics (such as color, tone, shadow, texture, size, shape, pattern and association) which permit a specific object or condition to be recognized on aerial photography.

Photographic enlargement prints were made from the aerial photography. The analyst's findings are annotated on overlays to the prints and described in the accompanying text. A legend of symbols used for this analysis is provided with the aerial photo print enlargements.

Due to factors inherent in the photographic printing process, prints may not exhibit the level of detail that is visible in the photographic transparencies used for this analysis. Therefore, some features identified from the aerial photography may not be clearly discernable or even visible, on the photographic prints presented in this report.

The terms "possible" and "probable" are used to indicate the degree of certainty of signature identification.

"Possible" is used when only a few characteristics of a signature are discernable. "Probable" is used when incrementally more characteristics are discernable. No qualifying terms are used when the characteristics of a signature allow for a definite feature identification.





AERIAL PHOTO SITE ANALYSIS EVANS AREA

FIGURE 2 JULY 2, 1940

AREA A: Agricultural land use.

AREA B: Agricultural land in transition.

AREA C: Mottled debris (DB) is visible on a marsh just outside the southeast corner of AREA C. A berm has been built around a section of the marsh. The farm house dump, reportedly located in the north central portion of AREA C in Report 171, is not visible. The majority of AREA C is in agricultural land use.

AREA D: Agricultural land use.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland BCCDDDDDEXARSTQXSSXBTPS Access Road <u>Drainage</u> Channelized Natural Feature Boundary



FIGURE 2 **EVANS AREA**

JULY 2, 1940

APPROX. SCALE 1:8,350

FIGURE 3 APRIL 22, 1953

NOTE: Significant features noted on the 1947 photography will be included with the 1953 analysis.

AREA A: Two ground scars (GS), one of which is visible in 1947, are present near the southeastern border of AREA A. A small channelized drainage ditch borders the scarred area to the east. This ditch remains visible throughout the study period. Debris and a probable excavated area (EX) are seen west of the aforementioned ground scars. An open storage (OS) area with containers (C) is present at the southern end of AREA A. The northwest portion of AREA A contains small buildings and numerous access roads (not annotated).

AREA B: A large pile of dark-toned (DK) material (M) (probable coal, as reported in collateral data) is present in a parking lot at the western side of AREA B in 1947. By 1953, the dark-toned material is no longer visible and a stained (ST) area is noted in the previous location of the dark-toned material. A pit with liquid (LQ) is visible at the northern end of the large parking lot. An additional pile of dark-toned material is visible at the northern end of AREA B. Staining is noted within four areas in the south central portion of AREA B.

AREA C: No sign of debris is visible in the marsh just outside the southeast corner of AREA C. The berm at the edge of the marsh appears to be eroding. Fill material is visible at the edge of a group of buildings within the eastern edge of AREA C. No debris was noted within the fill. Drainage ditches are visible leading from the Sanitary Waste Treatment Plant (TP). A ground scar is visible on the east side of the treatment plant. An excavated area is visible east of a dismantled (DS) farm house. An access road leads from a group of new buildings (B) to the excavated area. Two access roads lead to possible debris in a wooded area at the northwest corner of AREA C.

AREA D: A square, bermed depression (DP) with a stained bottom is visible in the central portion of AREA D. A ground scarred area is present southwest of the depression.

Building Containers Cleared Area Debris BCCDDDDDEKGGLLXSSYBTPS Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage AREA D Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland Wetland Access Road <u>Drainage</u> Channelized Natural Feature Boundary DK M (1947)

FIGURE 3 **EVANS AREA**

APRIL 22, 1953

DB

PROB EX

APPROX. SCALE 1:8,200

FIGURE 4 MAY 2, 1957

AREA A: The debris noted in the eastern portion of AREA A in 1953 is no longer visible. A circular mound of dark-toned material is now present in that vicinity. The ground scarred area seen in 1953 to the east remains. The open storage area with containers remains present along the southern end of the installation boundary. An additional open storage area with containers is located in the western portion of AREA A. A shallow excavation is noted west of the aforementioned storage areas.

AREA B: Some minor staining remains visible in the parking lot near the northwest border of AREA B, where dark-toned material (probable coal) was noted in 1947. The pit containing liquid noted at the northeastern end of this parking lot is still visible. The dark-toned material noted at the northwestern end of AREA B in 1953 is no longer visible and this area is revegetating (RV). Open storage areas and minor staining remain visible at the south central portion of AREA B.

AREA C: An open water excavation is visible in the marsh just outside the southeast corner of AREA C. This excavation remains throughout the study period and will be annotated, but not discussed further. A fan-shaped ground scar is visible west of the aforementioned excavation. The berm has been re-constructed around the eastern side of the marsh. A ground scar remains visible east of the treatment plant. The excavated area west of the treatment plant has increased in size since 1953. Access roads are visible leading to the excavation from several directions. Probable debris is visible within the excavation. Buildings located west of the excavation in 1953 have been dismantled. The access road and possible debris in the wooded area at the northwest corner of AREA C are still visible.

AREA D: The square depression and ground scar remain visible.

EX/PROB DB POSS DB BERM OS FIGURE 4 EVANS AREA MAY 2, 1957 APPROX. SCALE 1:8,200

LEGEND

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland B C C D D D D D E F G G T C S S S T

Access Road <u>Drainage</u> Channelized Natural Feature Boundary ===== -

FIGURE 5 MAY 13, 1963

AREA A: A ground scar appears where dark-toned material was noted in 1957 in the eastern portion of AREA A. The ground scarred area noted further east in that year is revegetating. A ground scarred area is noted where an open storage area with containers was noted along the southern boundary in 1957. A square pad is located near the western edge of AREA A where a shallow excavation was seen in 1957. This pad remains throughout the study period and will be annotated, but not discussed further.

AREA B: Staining remains visible in one of the three open storage areas noted in 1957 in the south central portion of AREA B. The pit containing liquid seen in 1957 in the large parking lot at the northwest border of AREA B is no longer visible. Two stained areas are now present in that general location.

AREA C: Less activity is noted in the marsh area just outside the southeast corner of AREA C. The fan-shaped ground scar is no longer visible. A small ground scar is visible in the southeast end of the marsh. The ground scarred area east of the treatment plant is revegetating. The excavation west of the treatment remains, although no debris is visible. Access roads continue to lead into a wooded area in the northwest portion of AREA C; however, only a ground scar exists where possible debris was noted in 1957. A square ground scar appears for the first time in the northcentral portion of AREA C.

AREA D: The square depression and ground scar within AREA D are revegetating.



13

LEGEND

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland BCCDDKPSXARSTQXSXBTPS Access Road <u>Drainage</u> Channelized Natural Feature Boundary

FIGURE 6 JUNE 13, 1970

NOTE: Those features noted on the 1969 photography are included with the analysis for 1970.

AREA A: Dark and light-toned material is piled in the northeastern portion of AREA A. The ground scarred area at the southern boundary has revegetated.

AREA B: Staining continues to be noted in the open storage in the south central portion of AREA B. Dark-toned material and a stain are visible at the north end of the large parking lot located along the northwest border of AREA B.

AREA C: The excavated area west of the treatment plant appears inactive. The square ground scar remains visible further west. An access road now leads to this scarred area from the north. The ground scar noted in the wooded area has been covered over by the construction of State Route 18.

AREA D: A building foundation (not annotated) and a ground scar are noted in the north end.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant BCCDDDKPSXARSTCASSSBFS Access Road <u>Drainage</u> Channelized Natural Feature Boundary



EVANS AREA

JUNE 13, 1970

APPROX. SCALE 1:8,400

FIGURE 7 MARCH 13, 1974

Note: Significant findings from the 1978 photography are included with the 1974 analysis.

AREA A: Mounds of dark and light-toned material remain in the eastern portion of AREA A. By 1978, the material is no longer visible. In 1978, the eastern border of AREA A is again exhibiting scarring.

AREA B: Ground staining continues to be noted in the open storage area located in the south central portion of AREA B; however, by 1978, less staining is visible in this location. A small amount of dark-toned material remains at the north end of the large parking lot. This dark-toned material remains visible on the 1978 photography. The stain noted in this location in 1970 is no longer visible.

AREA C: Activity is noted in the excavated area west of the treatment plant. By 1978, the excavated area has expanded to the west where a large tower was dismantled. Numerous access roads (not annotated) are visible east of the excavation and in a cleared area further west in 1978. Light-toned mounded material is visible on the former ground scarred area (1970) near the northwestern boundary of AREA C.

AREA D: The building foundation (not annotated) remains. A loop access road is present within AREA D. The majority of the area is revegetated by 1978.

Building Containers Cleared Area Debris B C C D D D D D S X A R S T C X S S S T P Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland Access Road Drainage Channelized Natural

Feature Boundary

DS TOWER (1978) PAD. DK M

FIGURE 7 **EVANS AREA**

MARCH 13, 1974

APPROX. SCALE 1:8,550

FIGURE 8 JANUARY 31, 1981

AREA A: Smaller amounts of light and dark-toned material, than noted in 1974, are noted near the east end of AREA A. The area further to the east remains scarred.

AREA B: Minor staining remains visible in the open storage area in the south central portion of AREA B. The dark-toned material seen in 1974 is no longer visible in the northern end of the large parking lot.

AREA C: The excavation west of the treatment plant has been filled. A linear pile of light-toned probable earthen material is located on the surface of the former excavation. Access roads (not annotated) remain east of the excavation. Light-toned material noted in the western portion of AREA C is no longer visible and this area has revegetated. The access roads (not annotated) winding through the western portion of AREA C appear inactive.

AREA D: A small fenced building is visible at the southern end of AREA D. Ground scarred areas are visible in the wooded area east of the building. A small amount of probable debris is visible near the building foundation (not annotated) in the north end of AREA D.

B - Building
C - Containers
CA - Cleared Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
DP - Depression
DS - Dismantled
EX - Excavation
FA - Filled Area
GR - Graded Area
GS - Ground Scar
LT - Light-Toned
LQ - Liquid
M - Material
OS - Open Storage
OW - Open Water
RV - Revegetated
SB - Storage Bin
ST - Stain
TP - Treatment Plant
W - Wetland

- Access Road Drainage
- Channelized Natural

→ - Natural– - Feature Boundary

PROB M GS

FIGURE 8
EVANS AREA

JANUARY 31, 1981

APPROX. SCALE 1:14,000

FIGURE 9 MARCH 11, 1991

AREA A: A circular pad is visible in the vicinity where dark and light-toned material was noted in previous years in the eastern portion of AREA A.

AREA B: Light-toned material is visible at the north end of AREA B. No staining is noted in the open storage area located in the south central portion of AREA B.

AREA C: The former excavated area noted west of the treatment plant appears graded. Remnants of access roads (not annotated) remain in the western portion of AREA C.

AREA D: New homes were constructed in the northern end of AREA D. The fenced building remains in the southern end. The scarred areas noted in the southern end in 1981 have revegetated.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland BCCDDDDDEKGGLCA68785F3 Access Road



Drainage
Channelized
Natural
Feature Boundary



EVANS AREA

MARCH 11, 1991

APPROX. SCALE 1:8,200

FIGURE 10 MARCH 11, 1991

A wetlands and drainage analysis was conducted to identify boundaries for wetlands (W) and open water (OW) areas, and to indicate drainage types and direction. The major wetland feature on this figure is the marsh located adjacent to the Shark River. Laurel Gully flows eastward through AREA C and empties into the Shark River.

B - Building
C - Containers
CA - Cleared Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
DP - Depression
DS - Dismantled
EX - Excavation
FA - Filled Area
GR - Graded Area
GS - Ground Scar
LT - Light-Toned
LQ - Liquid
M - Material
OS - Open Storage
OW - Open Water
RV - Revegetated
SB - Storage Bin
ST - Stain
TP - Treatment Plant
W - Wetland

- Access Road
Drainage
- Channelized
Natural
- Feature Boundary



FIGURE 10 EVANS AREA

WETLANDS AND DRAINAGE ANALYSIS MARCH 11, 1991

APPROX. SCALE 1:8,200

REFERENCES CHARLES WOOD AREA

AERIAL PHOTOGRAPHY

Agency NARS ¹	<u>Date</u> JULY 2, 1940	Orig. Scale 1:20K		Mission CNB	Exposure 25:73, 74
ASCS [®]	SEPT 19, 1947	1:20K	B/W	CNB	3D:90, 91
ASCS	MAY 2, 1957	1:20K	B/W	CNB	BR:106, 107
ASCS	MAY 13, 1963	1:20K	B/W	CNB	3DD:210, 211
uses	NOV 30, 1969	1:20K	B/W	VCIV	1:74, 75
ASCS	JUNE 13, 1970	1:20K	B/W	CNB	1LL:24, 25
USGS	APRIL 1973	1:40K	B/W	62300- 06800	68:116, 117
INTER"	MARCH 13, 1974	1:18K	B/W	2063	455:426-428
uses	APRIL 1975	1:19K	B/W	63060- 0050000	005:1-3
ASCS	JUNE 6, 1978	1:40K	B/W	34025	178:10, 11
USGS	MARCH 9, 1991	1:40K	CIR	NAPP	2999:108, 109

MAP USED

Source Name Scale Date
USGS Long Branch, NJ 1:24,000 1981

PUBLICATIONS

<u>Installation Assessment of Fort Monmouth</u>, Report No. 171, May 1980. U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, MD.

Jablonski, C.F. 1989. <u>Soil Survey of Monmouth County, New Jersey.</u> U.S. Department of Agriculture, Soil Conservation Service.

^{*}National Archives and Records Administration

^{*}Agricultural Stabilization and Conservation Service, U.S Department of Agriculture

^{*}U.S. Geological Survey, U.S. Department of Interior

[&]quot;Intera Information Technology, Houston, TX

AERIAL PHOTO SITE ANALYSIS CHARLES WOOD AREA, NJ

NOTE: Throughout this analysis, descriptions of activity noted at Site numbers 1-8 refer to locations of known or suspected waste materials at the CWA identified in collateral data (USATHAMA Report No. 171). The sludge dump also identified in this report has been given the designation of Site 9. P10 refers to a photo identified site discovered during this analysis. P10, located in the far southwestern corner of the CWA, is a probable debris disposal area and is active from 1947 to 1991. Below is a description of sites 1-9 as they appear in Report 171:

LIST OF KNOWN OR SUSPECTED WASTE MATERIALS, CWA, REPORT 171

- 1. Waste water treatment (lime pit)
- 2. Waste water treatment (lime pit)
- 3. Landfill (inactive)
- 4. Range (small arms)
- 5. Heavy metals (Sanilary Waste Treatment Plant)
- 6. Pesticide Storage
- 7. PCB (transformer)
- 8. Sanitary Waste Treatment Plant (pumping station)
- 9. Sludge dump

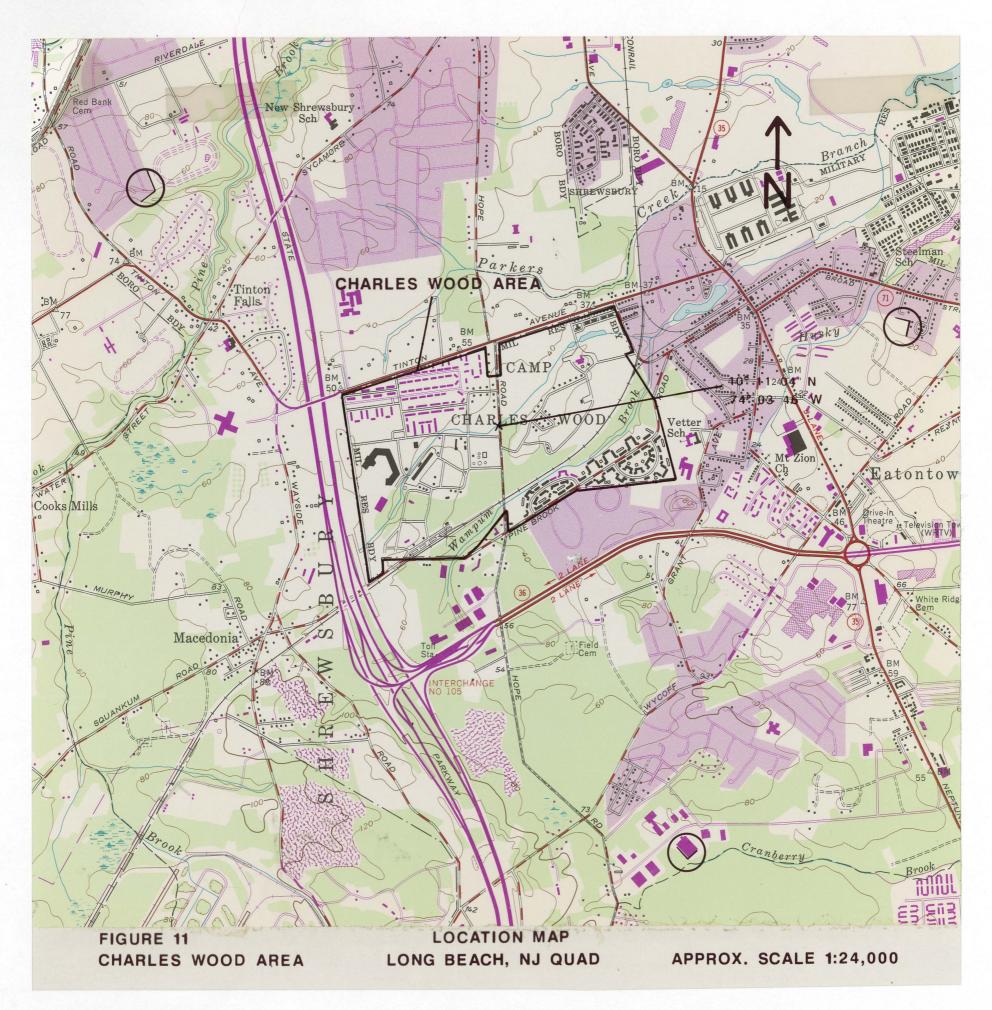


FIGURE 12 SEPTEMBER 19, 1947

NOTE: In 1940, the study area is occupied by a golf course, agricultural land and a forested area (no photo enlargement is included).

The CWA consists of numerous buildings, storage areas, a golf course and a wooded area. Vertical tanks appear onsite in several areas and are likely fuel storage tanks. These tanks will not be annotated nor discussed further. A fenced open storage area containing debris is visible in the north central portion of the CWA. Rectangular pads (possible tank pads) are visible south of the fenced storage area. A pit is visible east of the open storage area. Three large storage bins (SB) appear in the west central portion of the CWA and appear to be associated with the linear building located to the west. A pipeline is visible southwest of the storage bins.

Site Descriptions CWA - 1947

- 1, 2, 3,: This year of aerial photography pre-dates Site 1 and 2, and post-dates Site 3.
- 4: A linear building and a parking area are located in this area. No environmentally significant activity is noted in this location throughout the study period; therefore, this site will not be discussed further.
- 5: Sanitary Waste Treatment Plant (TP). Light-toned material is visible on the east side of the plant.
- 6: A road leads through the golf course to the pesticide storage building at the edge of a wooded area.
- 7: An L-shaped building is present.
- 8: Aerial photography pre-dates the existence of this site.
- 9: A grass covered, open area is visible in this location.
- P10: Two ground scarred/disturbed ground (DG) areas are located in the central portion of this area.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland BCCDDDDDEFGGLLSOOPSTPS

Drainage
Channelized
Natural
Feature Boundary

Access Road

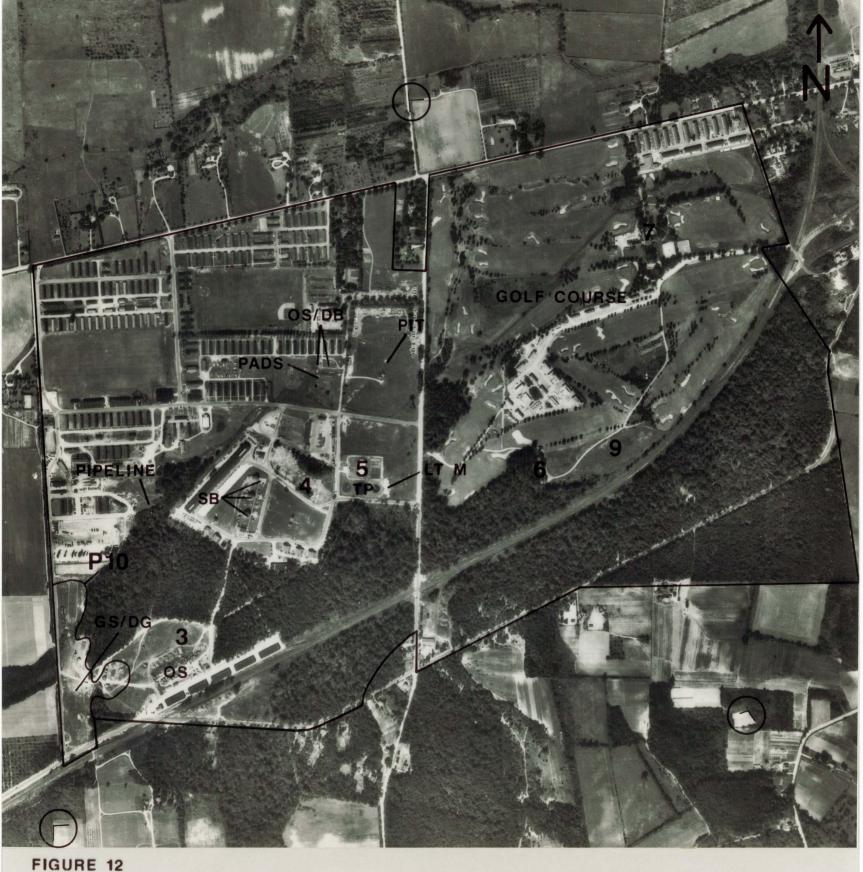


FIGURE 12 CHARLES WOOD AREA

SEPTEMBER 19, 1947

APPROX. SCALE 1:9,250

FIGURE 13 MAY 2, 1957

Numerous buildings have been dismantled at the northwest corner of the CWA. The fenced open storage area remains visible in the north central portion of the CWA. Smaller amounts of debris and other open storage materials are visible in this location. The rectangular pads are no longer visible and the pit noted to the east in 1947 has been filled.

The Hexagon Building (not annotated), a large, angular shaped building near the western boundary, has been constructed. A stain is seen near the edge of this building. The storage bins seen in 1947 remain. The pipeline noted to the southwest in 1947 is no longer visible. Staining is noted in an open storage area northeast of the storage bins. A ground scar is visible at the end of an access road in a wooded area south of the storage bins. This ground scar remains throughout the study period and will not be discussed further.

A ground scar is located in a wooded area at the southeast corner of the CWA. The ground scar remains visible until 1978 and will not be discussed further.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland B C C D B D D D S X A R S L L M S O O R S S T P W

Access Road <u>Drainage</u> Channelized Natural Feature Boundary



FIGURE 13 CHARLES WOOD AREA

MAY 2, 1957

APPROX. SCALE 1:9,150

FIGURE 13 MAY 2, 1957 (continued)

Site Descriptions CWA - 1957

- 1, 2: Rectangular light-toned areas appear at the approximate location of sites 1 and 2. No other environmentally significant features are noted at these locations throughout the study period; therefore, these sites will not be discussed further.
- 3: An access road leads into a graded, triangular-shaped area. This is likely the remnants of the Army Air Force landfill referred to in Report 171. No other environmentally significant features are noted in this location; therefore, this site will not be discussed further.
- 5: The light-toned material noted on the east side of treatment plant in 1947 is no longer visible.
- 6: Two buildings are present. Light-toned material is present south of the building. This light-toned material is likely lime and/or fertilizer for the golf course as reported in collateral information.
- 7: Building remains. No significant features noted.
- 8: A small building is present. No other environmentally significant features are noted at this site throughout the analysis; therefore, this site will not be discussed further.
- 9: Possible debris is noted in the western edge of site 9.
- P10: The ground scarred area has increased in size since 1947. Probable debris is visible along an access road at the eastern portion of site P10.

FIGURE 14 MAY 13, 1963

New buildings (not annotated) appear at the northwest corner. Buildings have been dismantled at the northeast corner. A probable ground scar is visible west of the golf course. The fenced open storage area noted in this area since 1947 is no longer present. The storage bins and the staining noted near the Hexagon Building in the southwest portion of CWA are no longer visible.

Site Descriptions CWA - 1963

- 5: Staining present in the southern end of site 5 may represent seepage from the treatment plant.
- 6: Two piles of light-toned material remain south of the building. Additional piles of light-toned material appear to the east.
- 9: A large cleared area containing several piles of darktoned mounded material is visible.
- P10: The northern portion of the ground scarred area appears revegetated. The southern end remains scarred and possible debris is visible.

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland B C C B G K P S X A R S T L A S S S T P S

Access Road

Drainage
Channelized
Natural
Feature Boundary



FIGURE 14 CHARLES WOOD AREA

MAY 13, 1963

APPROX. SCALE 1:9,100

FIGURE 15 NOVEMBER 30, 1969

NOTE: Significant findings from the 1970 photography are annotated on the 1969 photography.

A graded area (GR) is present on the north central border of the CWA. This activity is likely related to building construction. A large ground scarred area is visible south of the aforementioned graded area in the location of a former open storage area. Debris is noted surrounding two vertical tanks (not annotated) in the southwest portion of the study area.

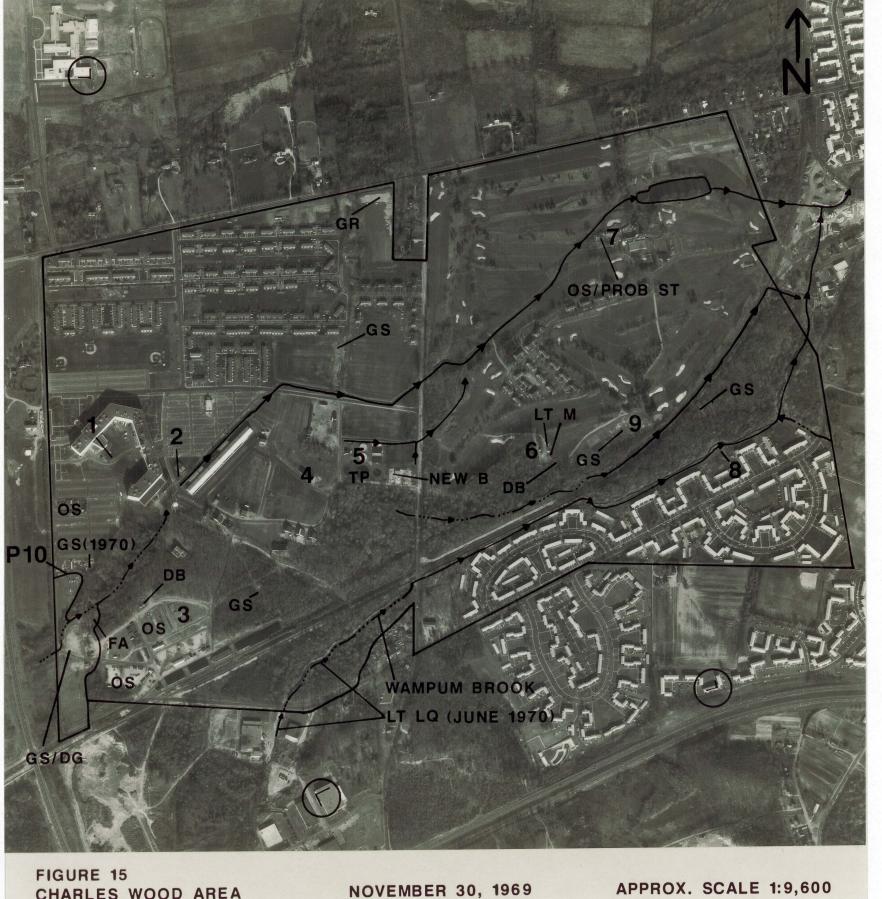
In 1970, a light-toned plume is visible emanating from an industrial area into Wampum Brook. The plume continues along the portion of Wampum Brook which flows through the southern portion of the CWA. A ground scarred area is visible near a parking lot in the southwest corner.

Site Descriptions CWA - 1969, 1970

- 5: A fence (not annotated) has been constructed around the treatment plant. A new building has been constructed east of the treatment plant.
- 6: Light-toned material and debris are present.
- 7: Open storage of material and a probable stain are noted in the western end of a parking lot.
- 9: Ground scars are visible at this location.
- P10: The ground scarred/disturbed ground area remains. A fill area (FA) is visible in the northern end of P10.

Building Containers Cleared Area DB DC DP S X A R S T C M S O O R S T P Debris Disturbed Ground Dark-Toned Depression Dismantled Excavation Filled Area Graded Area Ground Scar Light-Toned Liquid Material Open Storage Open Water Revegetated Storage Bin Stain Treatment Plant Wetland Access Road <u>Drainage</u> Channelized Natural

Feature Boundary



CHARLES WOOD AREA

FIGURE 16 MARCH 13, 1974

NOTE: Significant findings from the 1973 and 1975 photography are included with the 1974 analysis.

A new building and an open storage area are present in the southwestern portion of the CWA. Debris is visible southwest of this new building. Debris remains around two vertical tanks (not annotated) near site 3. A new ground scarred area is visible in the eastern portion of the CWA. By 1978, fewer trees are visible in this area.

Site Descriptions CWA - 1973, 1974, 1975

- 5: No significant activity noted.
- 6: Light-toned material remains visible in this area.
- 7: Open storage material and staining are no longer visible.
- 9: Three areas of medium-toned material and an earthmover (not annotated) are visible near the road in this area.
- P10: The ground scarred/disturbed ground area has been graded. Two dump trucks (not annotated) are in motion in this area.

Building Containers Cleared Area Debris B C C D D C D S X A R S L L M S S Y S T P Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area Filled Area Graded Area Ground Scar Light-Toned Liquid Material Open Storage Open Water Revegetated Storage Bin Stain Treatment Plant Wetland Access Road <u>Drainage</u> Channelized Natural

Feature Boundary



FIGURE 16 CHARLES WOOD AREA

MARCH 13, 1974

APPROX. SCALE 1:17,900

FIGURE 17 JUNE 6, 1978

Debris noted near a new building at the southwest corner in 1974 is no longer visible. A linear ground scarred area is visible along the northeastern boundary of CWA.

Site Descriptions CWA - 1978

- 5: No significant activity noted.
- 6: Light-toned material remains visible.
- 7: No significant activity noted.
- 9: This area appears to be revegetating. No evidence of the medium-toned material seen in 1974 is visible.

P10: The central portion of P10 remains cleared of vegetation and graded. An oval-shaped ground scarred area is visible at the southern end of P10.



FIGURE 17 CHARLES WOOD AREA

JUNE 6, 1978

APPROX. SCALE 1:9,850

Building
Containers
Cleared Area
Debris
Disturbed Ground
Dark-Toned
Depression
Dismantled
Excavation
Filled Area
Graded Area
Ground Scar
Light-Toned
Liquid
Material
Open Storage
Open Water
Revegetated
Storage Bin
Stain
Treatment Plant
Wetland B C C B B C K P S C K S

Access Road <u>Drainage</u> Channelized Natural Feature Boundary

FIGURE 18 MARCH 9, 1991

The linear ground scar area noted along the northeastern boundary in 1978 is revegetating. A cleared area (CA) is noted near the eastern site boundary north of Wampum Brook. Ground reconnaissance indicates this area is now used as a railroad storage area. The scarred area noted north of Site 8 since 1957 has revegetated.

Site Descriptions CWA - 1991

- 1, 2: No significant features were noted on the 1991 photography or during the field reconnaissance.
- 3: No significant features were noted on the 1991 photography. Debris was noted in an open storage area within site 3 during the field reconnaissance.
- 4: No significant features were noted in this location on the 1991 photography or during the field reconnaissance.
- 5: The 1991 photography illustrates that the treatment plant is no longer present. The area has been covered and graded. A building was noted in this location during the 1993 field reconnaissance.
- 6: A small amount of light-toned material remains near the building. There were no significant findings at this site during the field reconnaissance.
- 7: No significant features noted on the 1991 photography or during the field reconnaissance.
- 8: No significant features noted on the 1991 photography or during the field reconnaissance.
- 9: This area has revegetated, although a small amount of light and dark-toned material is visible.
- P10: A new group of buildings has been constructed at the southern end of P10. The central portion appears cleared and graded. Probable debris is visible on the northern perimeter of the cleared area.

B - Building
C - Containers
CA - Cleared Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
DP - Depression
DS - Dismantled
EX - Excavation
FA - Filled Area
GR - Graded Area
GS - Ground Scar
LT - Light-Toned
LQ - Liquid
M - Material
OS - Open Storage
OW - Open Water
RV - Revegetated
SB - Storage Bin
ST - Stain
TP - Treatment Plant
W - Wetland

- Access Road
Drainage
- Channelized
Natural
- Feature Boundary



FIGURE 18 CHARLES WOOD AREA

MARCH 9, 1991

APPROX. SCALE 1:10,000

FIGURE 19 MARCH 9, 1991 WETLANDS ANALYSIS

A wetlands and drainage analysis was conducted to identify boundaries for wetlands and open water areas, and to indicate surface drainage types and direction. Forested wetlands are located throughout the southern portion of the CWA being somewhat concentrated along Wampum Creek. Emergent wetlands are located near the center of the CWA. The drainage through the site is generally from the southwest to the northeast.

Building Containers Cleared Area Debris Disturbed Ground Dark-Toned BCCDDDDDEXARSTQXSSXBTPS Dark-Toned Depression Dismantled Excavation Filled Area Graded Area Ground Scar Light-Toned Liquid Material Open Storage Open Water Revegetated Storage Bin Stain Treatment Plan Treatment Plant Wetland Access Road <u>Drainage</u> Channelized Natural Feature Boundary



FIGURE 19 CHARLES WOOD AREA

WETLANDS AND DRAINAGE ANALYSIS MARCH 9, 1991

APPROX. SCALE 1:10,000

REFERENCES CHARLES WOOD AREA

AERIAL PHOTOGRAPHY

Agency NARS ¹	<u>Date</u> JULY 2, 1940	Oriq. Scale 1:20K		Mission CNB	<u>Exposure</u> 25:73, 74
ASCS [®]	SEPT 19, 1947	1:20K	B/W	CNB	3D:90, 91
ASCS	MAY 2, 1957	1:20K	B/W	CNB	8R:106, 107
ASCS	MAY 13, 1963	1:20K	B/W	CNB	3DD:210, 211
USGS#	NDV 30, 1969	1:20K	B/W	VCIV	1:74, 75
ASCS	JUNE 13, 1970	1:20K	B/W	CNB	1LL:24, 25
usgs	APRIL 1973	1:40K	B/W	62300- 06800	68:116, 117
INTER"	MARCH 13, 1974	1:18K	B/W	2043	455:426-428
usgs	APRIL 1975	1:19K	B/W	63060- 0050000	005:1-3
ASCS	JUNE 6, 1978	1:40K	B/W	34025	178:10, 11
USGS	MARCH 9, 1991	1:40K	CIR	NAPP	2999:108, 109

MAP USED

Source Name Scale Date
USGS Long Branch, NJ 1:24,000 1981

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<u>Installation Assessment of Fort Monmouth</u>, Report No. 171, May 1980. U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, MD.

Jablonski, C.F. 1989. <u>Soil Survey of Monmouth County, New Jersey.</u> U.S. Department of Agriculture, Soil Conservation Service.

¹National Archives and Records Administration

[#]Agricultural Stabilization and Conservation Service, U.S
Department of Agriculture

^₃U.S. Geological Survey, U.S. Department of Interior

[&]quot;Intera Information Technology, Houston, TX

APPENDIX

GLOSSARY

This terminology is based on definitions developed by the Environmental Protection Agency's (EPA) Environmental Photographic Interpretation Center (EPIC) in conjunction with remote sensing publications and definitions found in standard dictionaries.

BERM: A man-made ridge or embankment, constructed of natural or man-made materials, often used to prevent the movement of materials, usually liquids.

CLEARED AREA: An area from which man-made activity has removed the trees, shrubs or other natural vegetative cover.

CONTAINER: Something such as a can, box, bucket, drum or barrel; which is used to hold, store and/or transport materials.

DEBRIS: The remains of anything broken or destroyed.

DISTURBED AREA: A ground surface which has been cleared, overturned, dug up, filled and/or changed from the surrounding area.

EXCAVATION: A cavity in the earth formed by digging or scooping out materials.

FILL AREA: An area where material, either earthen and/or non-earthen, has been deposited for such purposes as disposal, to level the ground surface, to eliminate a wet area, for building purposes, etc.

GRADED AREA: An area where the ground surface has been shaped, usually leveled to a smooth horizontal or sloping surface. Striations from earth moving equipment may, or may not, be visible.

GROUND SCAR: A ground surface where marks from a previous activity or feature, or from a subterranean feature are visible. Ground scars can result from many types of activity and therefore vary greatly in appearance (e.g., septic drain fields, buried waste disposal pits, trench scars, vehicle tracks etc.)

OPEN STORAGE: An open-air, outdoor area for storage of materials, supplies, vehicles and/or equipment; may or may not be enclosed by a fence.

GLOSSERY - CONTINUED

STAIN: An area that is soiled or discolored and distinct from the surrounding area. An attempt is made to distinguish features in this category from those created by precipitation. Stains do not necessarily refer to a liquid discharge. Staining may result from deposited residues of stored or disposed solid material. Stains exhibit little or no detectable relief.

TRENCH: A long narrow excavation.

WETLAND: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions.