PRELIMINARY ASSESSMENT

Travis Field
Savannah, Chatham County, Georgia

EPA ID # GAD984307918
CERCLIS # 05843

Prepared for U.S. Environmental Protection Agency
Region IV

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TABLE OF CONTENTS

1. INTRODUCTION 2

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS 2
   - 2.1 Location 2
   - 2.2 Operational History 3
   - 2.3 Past Activities 4

3. GROUNDWATER PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENT 4
   - 3.1 Geology 4
   - Hydrogeology 4
   - 3.2 Release from Hazardous Substances 5
   - 3.3 Drinking Water Receptors 6

4. SURFACE WATER PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENT 7
   - 4.1 Hydrology 7
   - 4.2 Release of a Hazardous Substance 8
   - 4.3 Release to a Drinking Water Intake 10
   - 4.4 Fisheries Downstream of the Site 11
   - 4.5 Sensitive Environments 11

5. SOIL AND AIR EXPOSURE PATHWAYS 11
   - 5.1 Soil 11
   - 5.2 Risk to Residents 12

6.0 SUMMARY AND CONCLUSION 13

REFERENCES 14

1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Georgia Environmental Protection Division (EPD) conducted a Preliminary Assessment at Travis Field, located in Chatham County, Georgia (EPA ID# GAD984307918, CERCLIS # 05843). The purpose of this investigation was to collect information concerning conditions at Travis Field sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA/SARA or other action. The investigation included a file review, a comprehensive target survey, and a site reconnaissance.

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

The Travis Field site consists of three abandoned landfills located on the former Chatham Army Airfield. The airport is now owned and operated by the City of Savannah as the Savannah International Airport. Travis Field is located in the northwest quadrant of Chatham County, Georgia, approximately 8 miles northwest of Savannah, Georgia. All three of the sites are located off of Georgia State Route 307 (Dean Forest Road).

Landfill No. 1 is an inactive landfill located at LAT 32° 7' 12.65"/LONG 81° 11' 5.8", which is approximately 750 feet east of State Route 307. Landfill No. 1 is the largest of the three landfill areas and covers approximately 15 acres. The landfill was built on a former wetland and is surrounded by wetland areas. Although the site topography is rather flat, access to the site is difficult due to dense brush and trees.

Landfill No. 2 is an inactive landfill located at LAT 32° 7' 5.17"/LONG 81° 11' 18.3". It is also located off of State Route 307 and is located southwest of landfill no. 1. The landfill covers approximately 7 acres. A drainage ditch borders the southern boundary of the site. An active gas station and a Georgia Air National Guard (GANG) Petroleum, Oils and Lubricant (POL) depot are located across the drainage ditch from the site. This landfill was also built on a former wetland and is heavily overgrown with vegetation making access to the site difficult.

Landfill No. 3 is an inactive landfill located at LAT 32° 8' 16.71"/LONG 81° 12' 49.65" The site is located between Gulfstream Road and Airways Road in the northwest quadrant of the Savannah International Airport. The site covers approximately 12 acres and is located approximately 1,000 feet northwest of the air traffic control tower. A large pond is located in the middle of the site. Adjacent to the pond is a large hill which may be a result from previously excavating the area that is now the pond. The site is located in a wetland habitat. St. Augustine

Creek is located across Gulfstream Road from the site [Ref. 1].

2.2 Operational History

Between September 1, 1942, and May 8, 1944, the Army Air Force acquired 2, 462.29 acres for Travis Field. The original acquisition was for use by the Army Air Force as an emergency auxiliary landing field. The site was eventually used as a command base and training station for the Second Bomb Wing of the Army Air Corps. The airport became known as Chatham Field. Military development ceased after World War II. Most of the airfield was declared Surplus on April 3, 1947. Complete withdrawal from the War Assets Administration was approved in October 1948. A Certificate of Transfer, dated November 28, 1948, conveyed the property from the War Assets Administration to the Air Force, and the name Chatham Field was changed to Chatham Air Force Base on June 23, 1949. All property leased or owned by the Federal Government was transferred to the City of Savannah for use as a civilian airport on July 5, 1950. Since 1950, the property that included landfills no.1 and no. 2 was sold to private sector interests, and this property is currently owned by Norfolk Southern Railway Company. Landfill no. 3 is still on Savannah International Airport property.

At landfill no. 1, documented disposed material included construction material/debris, appliance parts, pole timbers, shingles (suspected asbestos-containing materials (ACM)), and unlabelled drums of unknown content. The landfill materials were not identified during the on-site reconnaissance, however most of the site could not be accessed due to the overgrown vegetation.

At landfill no. 2, numerous 55-gallon drums were noted by the consultants for the Corps of Engineers. The drums had labels identifying the drum contents as lube oil, used JP-4, and solvents. In addition, landfill no. 2 contained spent oil filters, paint cans, suspected ACM shingles, parts cleaning equipment, and construction materials. During the on-site reconnaissance, various household waste and paint cans were identified. Again, the entire site could not be accessed due to the overgrown vegetation.

At landfill no.3, documented debris included numerous drums, paint cans, oil filters, cleaning solvent containers, 5-gallon plastic cans, metal debris, suspected ACM shingles, and appliance parts. During the on-site reconnaissance, drums were identified in different locations across the site. Also, a low lying area, which is located next to the large pond and adjacent to the large hill, was identified which contained various solid waste including paint cans, drums, and car parts [Ref. 1].

Removal activities have not taken place at any of the landfill sites. The investigation derived wastes (IDW) are currently located in drums on site [Ref. 2].

2.3 Past Activities

The Army Corps of Engineers has conducted subsurface investigations and site assessments at the site as part of the United States Army Corps of Engineer's Defense Environmental Restoration Program--Formerly Utilized Defense Sites (DERP-FUDS) Program. A phase I site investigation was conducted in 1993 by Ebasco to determine if the three landfills had contaminated the soil and groundwater from past Department of Defense activities [Ref.2].

A supplemental site investigation was conducted in 1995 to gather additional information and data in regards to the contamination previously identified in 1993. Information regarding potential receptors and the surrounding areas was researched in order to evaluate the site and its associated risk to human health and the environment. The results of the supplemental site investigation were submitted to EPD in July of 1996. The investigations included conductivity and electromagnetic surveys to identify the boundaries of the landfill areas. The investigations also included the sampling and analyses of soil and groundwater [Ref. 3].

3. GROUNDWATER PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENT

3.1 Geology

Travis Field is located in the Coastal Plain of Georgia. The Coastal Plain is composed of a wedge-shaped block of stratified sediments that rests upon a pre-Cretaceous basement complex of Mesozoic and Paleozoic sediments, igneous, and metamorphic rocks. The formations underlying the Coastal Plain consist of unconsolidated sand and clay, limestone, and dolomite. The Coastal Plain formations generally strike northeast-southwest and dip to the southeast. In Chatham County, the limestones become progressively sandier to the northeast, finally grading into sand in southeastern Beaufort County, South Carolina [Ref. 4]. The limestone in the Savannah area is called the Suwannee Limestone. It is a cream to tan, crystalline, highly vuggy limestone and is approximately 100 feet thick. Underneath the Suwanee Limestone is the Ocala Limestone. A stratigraphic column of the specific formations in the Travis Field area has been included in the appendix.

Grain size analyses were performed on random soil samples collected from across the site. All but one of the soil samples exhibited mostly sand. The percentages of sand ranged from 71.2 % to 92.5 %. One soil sample was composed of mainly silt with a silt percentage of 57.9. The soil samples were collected from depths between 7 and 15 feet below land surface [Ref. 3].

Hydrogeology

Water in all the Coastal Plain aquifers is present primarily in intergranular pore spaces between sand grains and secondarily in solution cavities in carbonate rocks. In the Travis Field

area, the surficial aquifer system consists of the Satilla Formation, the Cypresshead Formation, and the Coosawhatchie Formation of the Hawthorn Group (stratigraphic column is located int he appendix). A dense phosphatic silty clay of the Coosawhatchie acts as a basal confining unit. Generally, the surficial aquifer system in under unconfined or water-table conditions. Locally, thin beds of clay create confined or semi-confined conditions. Water in the aquifer system flows east to the coast, and the water level near the coast is influenced by tidal changes. The thickness of the aquifer in the Travis Field area is about 170 feet [Ref. 5].

The Miocene aquifer system in the site area underlies the surficial aquifer system and consists of the poorly sorted, fine- to coarse-grained, slightly phosphatic and dolomitic quartz sand of the Markshead Formation of the Hawthorn Group. The Miocene aquifer system is under confined conditions and is recharged where Miocene sediments outcrop northwest of the Travis Field area. The thickness of the aquifer ranges from about 20 to 150 feet, and it is approximately 80 feet in the Travis Field area [Ref. 5].

Beneath the Miocene aquifer system is the Upper Floridian aquifer. The Upper Floridian aquifer consists of a thick sequence of carbonate rocks belonging to the Suwanee and Ocala Limestone. Depth to the top of the Upper Floridian aquifer in the Travis Field area is about 250 feet. The dense dolomitic limestone of the Ocala Limestone acts as a semi-confining basal unit. The aquifer is under confined conditions and is recharged northwest and west of the coastal area of Georgia. Water levels in this aquifer respond to seasonal climatic changes, and in the Savannah area groundwater flows toward the pumping center created by water withdrawal from City of Savannah wells. The thickness of the Upper Floridian aquifer ranges from 200 to 700 feet, and it is approximately 250 feet thick in the Savannah area.

In Chatham County, wells yield 10 to 40 gpm, and the aquifer has an estimated hydraulic conductivity of 2 to 65 feet per day and a transmissivity of 14 to 1,100 square feet per day in the unconfined water-bearing zone, and a hydraulic conductivity of 40 to 400 feet per day and a transmissivity of 150 to 6,000 feet per day in the lower semi-confined water-bearing zone [Ref. 5].

3.2 Release from Hazardous Substances

Analytical data from 1993 identified arsenic, chromium, lead, mercury, methylene chloride, and zinc in the groundwater. Methylene chloride was detected in the groundwater and soil samples and may be attributed to laboratory contamination. Lead and chromium were the only contaminants identified with concentrations greater than the federal safe drinking water maximum contaminant levels (MCLs). Lead was detected in five of the groundwater samples with concentrations ranging from 17.8 to 29.3 ppb. The MCL for lead is 15 ppb. Only one groundwater sample had a chromium concentration greater than the MCL. The chromium concentration was 118 ppb and the MCL is 100 ppb [Ref. 6].

In September of 1995, acetone, arsenic, beryllium, carbon disulfide, chromium, lead, mercury, and zinc were detected in the groundwater at the three landfills. Beryllium (8.3 ppb) and lead (40 and 34 ppb) were detected in the groundwater at landfill no. 1 with concentrations greater than the MCLs (4 ppb and 15 ppb, respectively). Lead was detected in the groundwater at landfill no. 2 with a concentration of 19 ppb and 20 ppb. Lead was also detected in the groundwater at landfill no. 3 with a concentration of 29 ppb [Ref. 3].

A monitoring well was installed and designated as an upgradient well for landfill no. 1, however due to a groundwater divide and bi-lateral flow, the well may not be representative of background concentrations. Chromium and zinc were detected in the background well and the previously designated background well [Ref. 3].

Summary of Groundwater Contamination Identified at the Landfills

Contaminant in Groundwater	Maximum Concentration (ppb)	Drinking Water MCL (ppb)
Acetone	170	4000
Arsenic	19.7	50
Beryllium	**8.3**	4
Carbon disulfide	83	4000
Chromium	**118**	100
Lead	**40**	15
Mercury	0.52	2
Methylene Chloride	2	5
Zinc	120	2000

*Shaded areas indicate contaminant concentrations in groundwater that are greater than the federal safe drinking water MCL.

3.3 Drinking Water Receptors

The residents of the 4 mile area surrounding the three landfills utilize groundwater extracted from private wells, municipal wells, City of Savannah wells, Garden City wells, and Port Wentworth wells. According to Harry Jue, the water superintendent for the City of Savannah, the nearest surface water intake is 8 miles from the Travis Field area [Ref. 7]. There are 3 City of Savannah wells, #17, #18, and #19, located at Travis Field. The wells are all drilled into the confined aquifer and are drilled greater than 600 feet below ground surface. Wells #17 and #19 are cased down to 274 feet and 280 feet, respectively. The casing depth of well #18 is not known [Ref. 8]. Due to the fact that groundwater is extracted from the confined aquifer, the well-head protection area for each well is 100 feet [Ref. 9].

Due to the close distance between Landfills no.1 and no. 2, drinking water receptors have been investigated from a latitude and longitude coordinate (LAT 32° 7' 9"/LONG 81° 11' 12.51") which is located halfway between the two individual landfills. The closest known well to the site is the # 17 City of Savannah well at Travis Field which is located approximately one half mile from the site. The well is drilled down to 652 feet below land surface and is cased down 274 feet [Ref. 8].

The census data indicates that there are residents located within 0.25-.5 mile of the site who utilize groundwater from both private and public drinking water wells.

The closest known active well to landfill no.3 is the #19 City of Savannah well at Travis Field. The well is located approximately 1.5 miles to the northwest of the landfill. The well is drilled down to 660 feet and is cased 280 feet.

The census data indicates that there are residents located within 0.5 and 1 mile of landfill no. 3 who utilize groundwater from both private and public drinking water wells [Ref. 15, 16].

The drinking water receptor survey was conducted using 1990 data from the U.S. Census Bureau. It is important to note that there is an anomaly in the data used for the receptor survey pertaining to landfill no. 1 and landfill no. 2. There is a prison located north-northeast of the two landfills. The population of the prisoners is included in the total population for the target area, however the prison is not expressed in the Census data in housing units. This anomaly results in a high average persons per household (example: the 0.5 to 1 mile radius indicates 10.9 persons per household). The anomaly has been compensated for by calculating the average population per household per block group and then multiplying that number by the average household per block. This calculation, therefore, makes the data more representative of the actual population conditions within the radii. A population graphic has been included in the appendix [Ref. 10].

4. SURFACE WATER PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENT

4.1 Hydrology

According to the flood insurance rate maps from the Federal Emergency Management Agency, all three of the former landfills are located within 100-year floodplains [Ref. 11, 12, 17, 18, 19].

Landfill no. 1

The overland distance to the probable point of entry to surface water, Pipe Makers Canal, is approximately 2000 feet. From the point of entry, Pipe Makers Canal extends eastward for approximately 9000 feet. It does not connect with the Savannah River.

Landfill no. 2

The overland distance to the probable point of entry to surface water, which is also Pipe Makers Canal, is approximately 1800 feet. Pipe Makers Canal extends eastward for approximately 9000 feet.

Landfill no. 3

Landfill no. 3 contains an on-site pond which is the probable point of entry to surface water. There is a drainage ditch which exits the pond and flows along Gulfstream Road. The overland distance to the next water body, St. Augustine Creek, is approximately 150 to 200 feet from the pond. St Augustine Creek connects to the Front River which then connects with the Savannah River [Ref. 13, 14].

4.2 Release of a Hazardous Substance

A release to surface water has occurred at landfills no.1 and no. 2. The on-site pond located at landfill no. 3 has not been sampled.

Landfill no. 1

Three surface water samples were collected from landfill no. 1. The sample collected downgradient of the landfill had detectable concentrations of lead (14 ppb) and zinc (160 ppb) [Ref. 3]. The applicable in-stream standards for lead and zinc are based on hardness analyses [Ref. 20]. Although hardness analyses were not performed on the samples, the detected lead concentration exceeds all of the in-stream lead standards with the least stringent concentration being 7.7 ppb. The detected zinc concentration exceeds two of the three zinc standards. The least stringent zinc standard is 190 ppb for hardness concentrations ranging up to 199 ppm.

A sediment sample was also collected and analyzed from each location where a surface water sample had been collected. Chromium, lead, mercury, and zinc were detected in the samples. Chromium was detected at two locations with concentrations of 2.6 ppm and 3 ppm. Lead was detected in all three of the samples with concentrations ranging from 5.6 ppm to 18 ppm. Mercury was detected in one sample with a concentration of .021 ppm. Zinc was detected in two samples with concentrations of 10 ppm.

Landfill no. 2

Two surface water samples were collected from drainage ditches located at landfill no. 2. The designated upgradient sample had detectable concentrations of bis (2-ethylhexyl) phthalate and zinc. Bis (2-ethylhexyl) phthalate was detected with a concentration of 20 ppb. The in-stream water quality standard is 5.92 ppb. Zinc was detected with a concentration of 68 ppb. This concentration exceeds the most stringent in-stream water quality standard of 60 ppb.

Landfill no. 2, like landfill no. 1, is located across a groundwater divide and therefore the designated background sample may not be representative of background conditions. There is a small pond located on landfill no. 2, but it was not sampled.

The downstream surface water sample had detectable concentrations of lead (19 ppb) and zinc (72 ppb). The lead concentration exceeds all of the in-stream water quality standards for lead. The zinc concentration exceeds the most stringent standard of 60 ppb. A hydraulically downgradient surface water sample was not collected at the landfill due to a lack of water.

Sediment samples were collected from the three areas allocated for surface water sampling. Arsenic (4.3 ppm), cadmium (2.1 ppm), chromium (22 ppm), copper (44 ppm), lead (33 ppm), silver (13 ppm), and zinc (410 ppm) were detected in the samples. Minor concentrations (<0.16 ppm) of toluene, ethylbenzene, trichloroethene, and m-xylene were also detected. Pesticides were identified with concentrations less than 0.1 ppm and bis (2-ethylhexyl) phthalate was detected with a concentration of 2.6 ppm.

Landfill no. 3

Three surface water samples were collected at landfill no. 3. The three samples were collected from the drainage ditch which exits the on-site pond. The pond is located within a depression in the center of the landfill. The topography slopes downward to the west of the pond and then rises up again across the western border of the landfill. One sample, therefore, is downgradient of the pond and two of the samples are topographically upgradient of the pond. The pond has not been sampled to date.

The samples were analyzed for volatile organics, semi-volatile organics, pesticides, PCBs, extractable TPH, and priority pollutant metals. The samples were below the detection limits for all of the analyses.

Sediment samples were collected and analyzed from each of the locations where surface water samples had been collected. The same analyses were conducted for the sediment samples as the surface water samples. The only constituents detected were chromium, lead, and zinc. The concentrations for chromium ranged from 5.1 ppm to 7.1 ppm. The lead concentrations ranged from 3.7 ppm to 5 ppm. The zinc concentrations ranged from 4.3 ppm to 13 ppm [Ref. 3].

Summary of Surface Water Contamination Identified at the Landfills

Contaminant in Surface Water	Maximum Concentration (ppb)	Ga. In-stream Water Quality Standard (ppb)
Bis (2-ethylhexyl) phthalate	**20**	5.92
Lead	**19**	1.7 - hardness < 100 mg/l 3.2 - hardness 100 < 199 mg/l 7.7 - hardness 200 + mg/l
Zinc	**160**	60 - hardness < 100 mg/l 110-hardness 100 < 199 mg/l 190-hardness 200 + mg/l

*Shaded Areas indicate surface water contaminations greater than the Georgia in-stream water quality standards

Summary of Sediment Contamination Identified at the Landfills

Contaminant in Sediment	Maximum Concentration (ppm)
Arsenic	4.3
Cadmium	2.1
Chromium	22
Copper	44
Lead	33
Mercury	0.021
Silver	13
Zinc	410

*Text includes listing of other minor contaminants identified in sediment.

4.3 Release to a Drinking Water Intake

According to a conversation with Harry Jue, water superintendent for the City of Savannah, the closest surface water intake is 8 miles away from the site in Effingham County. The surface water intake is located within 15 miles of the site, however the intake is not downstream of the site.

4.4 Fisheries Downstream of the Site

Landfill no. 3 contains an on-site pond which may be used as a fishery. The pond is a suspected primary target. St. Augustine Creek is also a fishery. The overland distance to the creek is approximately 150 to 200 feet from the site.

4.5 Sensitive Environments

All three of the landfills are located in former wetlands and are surrounded by wetlands. Federally protected threatened and endangered species inhabiting Chatham County include the shortnose sturgeon, loggerhead turtle, american alligator, eastern indigo snake, eastern brown pelican, wood stork, and the southern bald eagle. Also, there is a threatened plant species Sarracenia minor, the hooded pitcher-plant, that grows within Chatham County [Ref. 21, 22].

5. SOIL AND AIR EXPOSURE PATHWAYS

5.1 Soil

Soil samples have been collected and analyzed from the three landfill areas. The soil samples were analyzed for volatile organic compounds, semi-volatile organic compounds, TPH, pesticides/PCBs, and priority pollutant metals. Soil contaminated by inorganics and some volatiles has been detected by laboratory analyses.

Landfill no. 1

Low levels of volatiles and one semi-volatile were identified at landfill no. 1. Various metals were also identified. Acetone (1.7 ppm), m-xylene (.015 ppm) and toluene (0.13 ppm) were identified. Indeno (1,2,3-cd) pyrene was detected with a concentration of 0.420 ppm. The maximum concentrations for metals in the soil were 12 ppm for arsenic, 0.98 ppm for beryllium, 21 ppm for chromium, 53.9 ppm for lead and 23.7 ppm for zinc.

Landfill no. 2

Landfill no. 2 contained contamination from volatiles, pesticides, and metals. Acetone (160 ppm), toluene (0.19 ppm) and m-xylene (0.016) were detected. 4-4' DDD, 4-4' DDE, and 4-4' DDT were all detected at concentrations less than 0.01 ppm. The maximum concentrations of metals in the soil were 2.6 ppm for arsenic, 0.49 ppm for beryllium, 0.83 ppm for cadmium, 40 ppm for chromium, 3.9 ppm for copper, 100 ppm for lead, 0.075 for mercury, and 14 ppm for zinc.

Landfill no. 3

Metals were identified in the soil at landfill no. 3. The maximum concentrations for metals were 3.3 ppm for arsenic, 26.8 ppm for chromium, 4.2 ppm for copper, 10.8 ppm for lead, and 9.4 ppm for zinc [Ref. 3].

Summary of Soil Contamination Identified in Soil

Contaminant in Soil	Maximum Concentration (ppm)
Acetone	160
Arsenic	12
Beryllium	0.98
Cadmium	0.83
Chromium	40
Copper	4.2
Indeno (1,2,3-cd) pyrene	0.42
Lead	100
Mercury	0.075
m-xylene	0.015
Toluene	0.19
Zinc	23.7
4-4' DDD, 4-4' DDE, 4-4'DDT	Each concentration < 0.01

5.2 Risk to Residents

There are no on-site workers or residents living within 200 feet of the three landfills. According to the 1990 Census Bureau data, there are 17,966 people living within 4 miles of landfills no.1 and landfill no. 2. There are 13, 310 people living within 4 miles of landfill no. 3. The closest building to any of the three landfills is a retail service station across a ditch from landfill no. 2. The gas station is approximately 100 feet from the edge of the landfill [Ref. 2].

The three landfills are located in wetland areas. Landfills no. 1 and no. 2 have adjacent wetlands to the east and south of the sites. Landfill no. 3 has a wetland located to the west of the site. A release to the air is not likely and odors were not detected during the site reconnaissance.

6.0 SUMMARY AND CONCLUSION

The three landfills have been impacted by previous landfilling activities. The soil and groundwater have been contaminated with metals, volatiles, semi-volatiles, and pesticides. The groundwater pathway is of limited concern due to the distance of drinking water receptors and to the installation of drinking water wells within the confined aquifer.

The surface water pathway is of considerable concern due to the presence of an on-site surface water body at landfill no.3. The pond has not been sampled to date. Also, metals have been detected in drainage ditches at landfill no. 1 and landfill no. 2. The Georgia in-stream water quality standards have been exceeded for lead, zinc, and bis (2-ethylhexyl) phthalate.

The concentrations of groundwater and surface water that have exceeded federal safe drinking water standards and Georgia in-stream water quality standards do not exceed the standards by an order of magnitude.

There is soil contamination at the landfills however much of the surrounding areas of the landfills are not populated. Also, the landfills are difficult to access due to vegetation.

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4 MILE RADIAL SEARCH OF TRAVIS FIELD LANDFILL SITES
SAVANNAH, CHATHAM COUNTY

Source: US Census Bureau, 1990

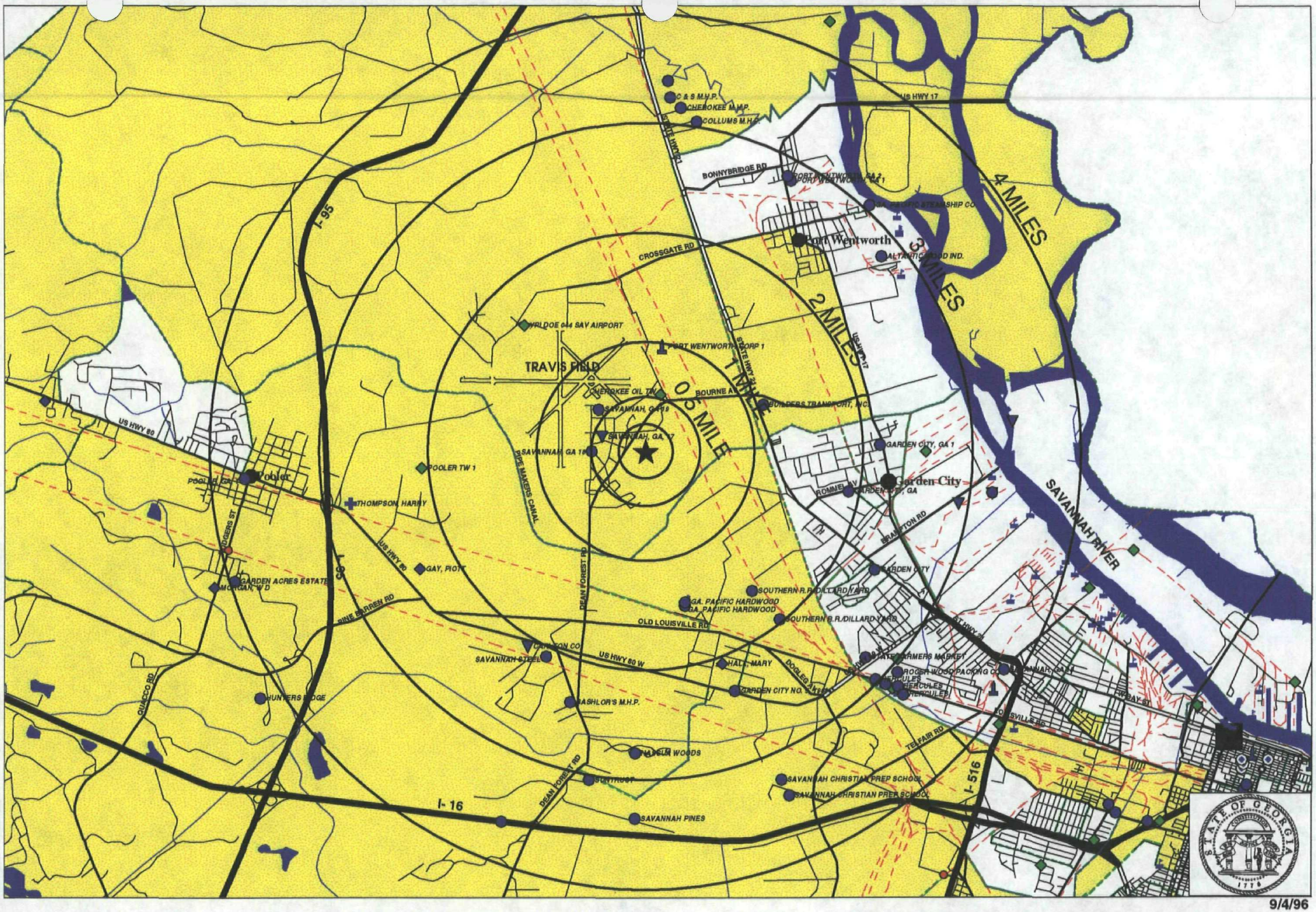
(LANDFILLS #1 & #2) LAT 32° 7' 9" / LONG 81°11' 12.51"

RANGE	POPULATION	TOTAL HOUSEHOLDS	HOUSEHOLDS ON PRIVATE WATER	HOUSEHOLDS ON PUBLIC WATER	POP. SERVED BY PRIVATE WATER	POP. SERVED BY PUBLIC WATER
0 - 0.25 miles	0	0	0	0	0	0
0.25 - 0.5 miles	55	25	15	10	35	20
0.5 - 1 mile	604 (*659*)	55 (*80*)	12 (*27*)	43 (*53*)	28 (*63*)	576 (*596*)
1 - 2 miles	3249 (*3908*)	1081 (*1161*)	36 (*63*)	1045 (*1098*)	86 (*149*)	3163 (*3759*)
2 - 3 miles	8815 (*12,723*)	3346 (*4507*)	264 (*327*)	3082 (*4180*)	662 (*811*)	8153 (*11,912*)
3 - 4 miles	5243 (*17,966*)	1872 (*6379*)	435 (*762*)	1437 (*5617*)	1222 (*2033*)	4021 (*15,933*)

(LANDFILL #3) LAT 32° 8' 16.71" / LONG 81° 12' 49.65"

RANGE	POPULATION	TOTAL HOUSEHOLDS	HOUSEHOLDS ON PRIVATE WATER	HOUSEHOLDS ON PUBLIC WATER	POP. SERVED BY PRIVATE WATER	POP. SERVED BY PUBLIC WATER
0 - 0.25 miles	0	0	0	0	0	0
0.25 - 0.5 miles	0	0	0	0	0	0
0.5 - 1 mile	4	2	1	1	2	2
1 - 2 miles	926 (*930*)	214 (*216*)	122 (123)	92 (93)	527 (*529*)	399 (*401*)
2 - 3 miles	4397 (*5327*)	1397 (*1613*)	153 (*276*)	1244 (*1337*)	481 (*1010*)	3916 (*4317*)
3 - 4 miles	7983 (*13,310*)	2817 (*4430*)	280 (*556*)	2537 (*3874*)	793 (*1803*)	7190 (*11,507*)

NOTE: Numbers in parentheses are **cumulative** totals

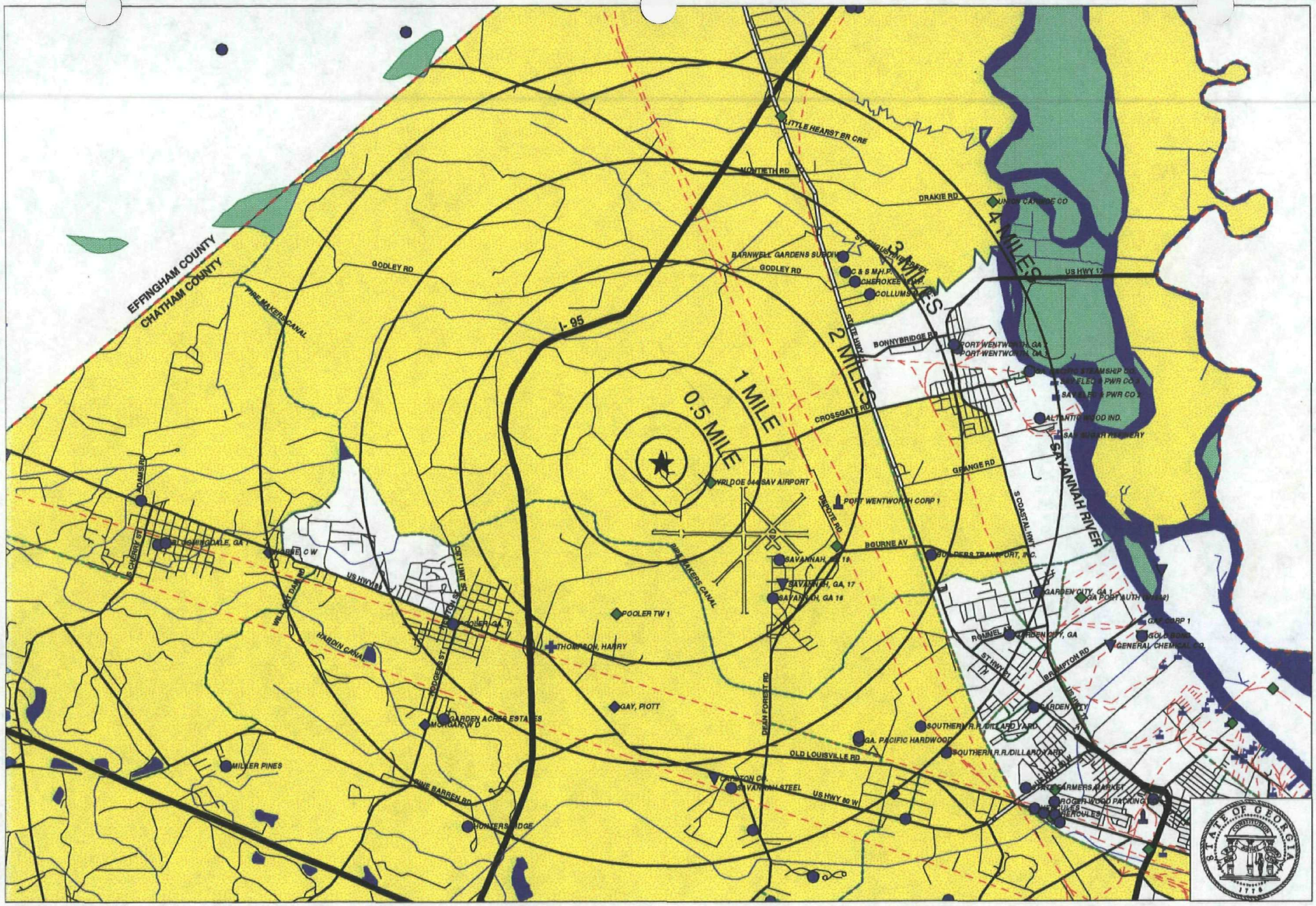


9/4/96

Census Block Group with >zero non-public supply well
Census Block Group served by public water
Public Supply Well
Surface Water Intake
Domestic Well
Unused Well
Spring
Industrial Well
Commercial Well
Irrigation Well
Livestock well
Well - Unknown use
Other Well
County Boundary
Road
Major Highway
Stream/River
Railroad

TRAVIS FIELD LANDFILLS #1 & #2
SAVANNAH, CHATHAM COUNTY
0.25, 0.5, 1, 2, 3, and 4 MILE RADII

SOURCES: Georgia Public Water Source Inventory, 1994; US Census Bureau 1990; Ga. Water Source Inv., USGS, 1995

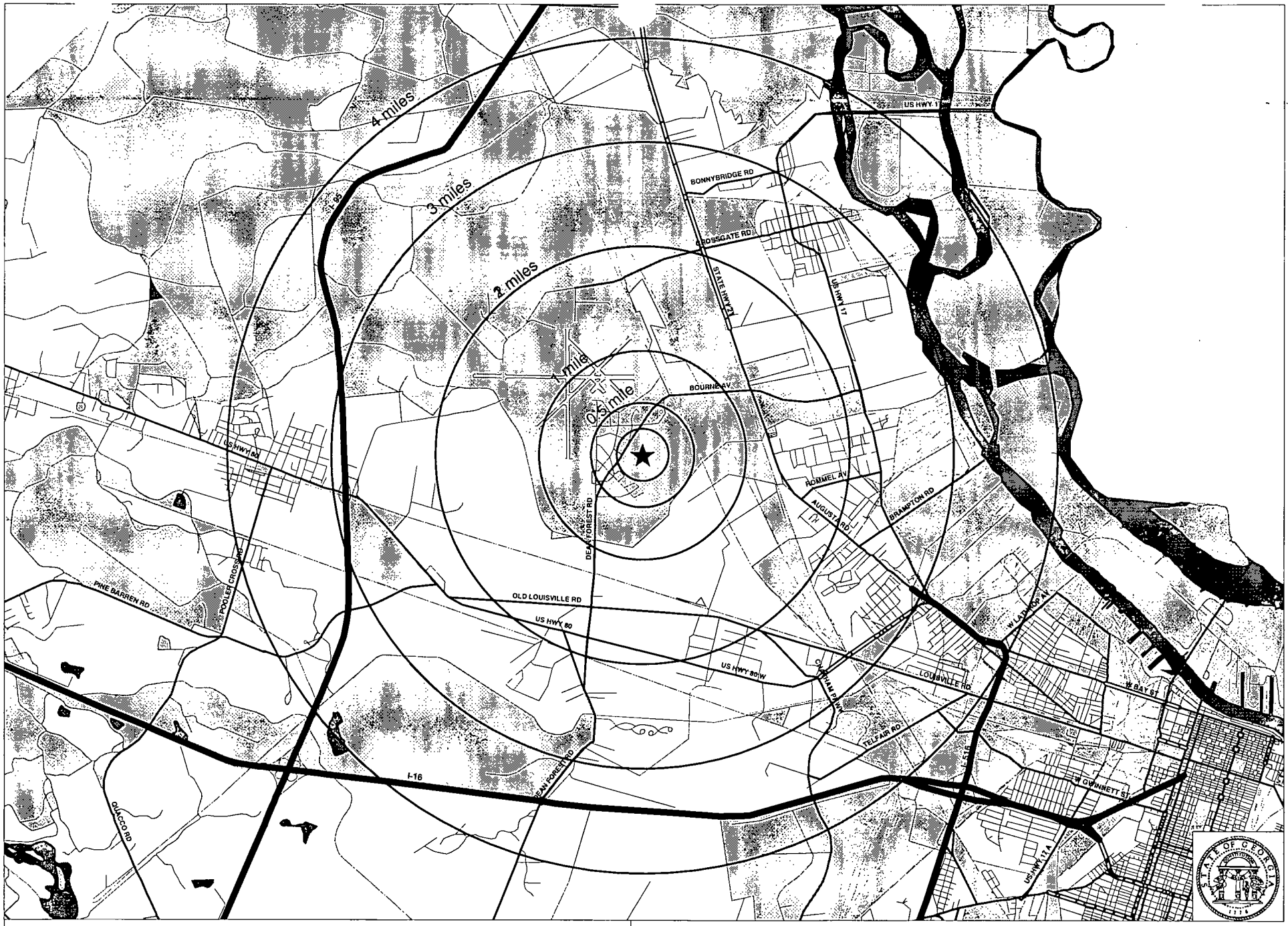


Census Block Group with >zero non-public supply well
Census Block Group served by public water
Public Supply Well
Surface Water Intake
Domestic Well
Unused Well
Spring
Industrial Well
Commercial Well
Irrigation Well
Livestock well
Well - Unknown use
Other Well
County Boundary
Road
Major Highway
Stream/River
Railroad
Wetland

9/5/96

TRAVIS FIELD SITE (LANDFILL #3)
SAVANNAH, CHATHAM COUNTY
0.25, 0.5, 1, 2, 3 and 4 MILE RADII

SOURCES: Georgia Public Water Source Inventory, 1994; US Census Bureau 1990; Ga. Water Source Inv., USGS, 1995



Uninhabited Census blocks
Lakes/Rivers
Limited Access Highway
Major Road
Road
Railroad
Streams/Canals

TRAVIS FIELD - SAVANNAH, CHATHAM COUNTY SITE (LANDFILLS 1 & 2) 4 MILE RADIAL POPULATION SEARCH

Source: 1990 Census Bureau

City of Savannah, Georgia 31402

Water Operations Department
P.O. BOX 1027
SAVANNAH, GEORGIA 31402

FAX Transmittal COVER SHEET

Please deliver the following pages to:

Name: David Brown Lee

Company: EPD

FAX No. 404 651-9425

This transmittal is being sent from:

Name: Kenny Dumas

Date: 8/16/95

FAX No: 912 651-6808

Special instructions/remarks:

For your information & Files, Please Advise if you need any additional information.

Kenny Dumas
912 651-6584

Number of pages being sent including this sheet: 6

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WELL LOCATIONS
CITY OF SAVANNAH

WELL #	
1	WALZ DRIVE NEXT TO JULIETTE LOWE SCHOOL
2	STILES AVENUE BEHIND CITY LOT
3	IN CITY LOT YARD
4	GWINNETT STREET AT WEST BOUNDARY AND I-16
5	IN CORNER OF WHITAKER STREET AND PARK AVENUE(FORSYTH PRK)
6	CORNELL AVENUE BETWEEN WATERS AVENUE AND B.C. SCHOOL
7	CORNER OF VICTORY DRIVE AND WATERS AVENUE (DAFFIN PARK)
8	EDGEWOOD RD. AND PIERPONT AVE.(GIRL SCOUT PK.-GORDONSTON)
9	COLUMBUS DRIVE AND ABERCORN STREET
10	AUGUSTA AVENUE AT OLD WEST LATHROP AVENUE
11	PENNSYLVANIA AVE. AT HARRISON ST. BEHIND FIRE STATION
12	35TH STREET AND LINCOLN STREET
13	MONTGOMERY CROSSROADS AT BARTLETT SCHOOL
14	WINDSOR FOREST ON BRIARCLIFF CIRCLE OFF WINDSOR ROAD
15	WILSHIRE ESTATES ON LARGO DRIVE NEAR TIBET AVENUE
16	SOUTHEASTERN SHIPYARD-END OF WALSTROM ROAD
17	TRAVIS FIELD ACROSS FROM OLD AIRPORT TERMINAL
18	TRAVIS FIELD NEXT TO QUALITY COURTS MOTEL
19	TRAVIS FIELD AT EDGE OF RUNWAY BEHIND HANGAR BUILDING
20	DEAD END SAPELO ROAD-ISLANDWOOD (WILMINGTON ISLAND)

21 WELLINGTON CIRCLE OFF MILLWARD ROAD (WILMINGTON ISLAND)

22 WILMINGTON ISLAND ROAD - BEHIND HOUSE #918

23 OFF LARGO RD. JUST BEFORE BERKSHIRE WEST @ WATER TANK

24 OFF LEANING OAKS DRIVE - WOODRIDGE ESTATES(WILMINGTON ISL)

25 GAMBLE ROAD OFF ACL BLVD

26 COFFEE BLUFF AT COFFEE BLUFF ESTATES

27 BEHIND ST. JOSEPH'S HOSPITAL ON McAULEY DRIVE

28 BRYAN WOODS ROAD & HWY 80 (WHITEMARSH ISLAND)

29 GEORGETOWN - BARKSDALE DRIVE & RED FOX DRIVE

30 G-2 GEORGETOWN - END OF KING GEORGE BLVD (VILLAGE GREEN)

31 CHATHAM PARKWAY - BESIDE SAV. GAS OFFICE

32 JOHNNY MERCER & HWY 80 - WHITEMARSH ISLAND

33 DUTCH ISLAND - HERB RIVER DRIVE BETWEEN 401 & 405

34 DUTCH ISLAND - KOLB DRIVE - BETWEEN 840 & 841

35 I-95 & 204 - BEHIND WAFFLE HOUSE - WEST OF I-95

36 I-95 & 204 - BEHIND SAVANNAH FESTIVAL OUTLET - EAST OF I-95

37 I-16 & DEAN FORREST ROAD - SAVANNAH QUARTERS

38 DUTCH ISLAND - DUTCH ISLAND DRIVE BET. VERDELL & TERRAPIN

39 BACKUP WELL TO #28 - 6" SUBMERSIBLE

40 BACKUP WELL TO #37 - 6" SUBMERSIBLE

41 SAVANNAH STATE COLLEGE - WHATLEY AND FALLIGANT AVENUE

42 ARGONIC ROAD OFF EISENHOWER - REPLACEMENT FOR WELL #6

WELL CAPACITIES
CITY OF SAVANNAH

WELL NO.	CAPACITY (GPM)	CAPACITY (MGD)	CAPACITY(MG/YR)
I&D	34,723	50.000	18,250
1	1362	1.961	716
2	850	1.224	447
3	2500	3.600	1,314
4	3088	4.447	1,623
5	3500	5.040	1,840
6	1500	2.160	788
7	2083	3.000	1,095
8	3100	4.464	1,629
9	2700	3.888	1,419
10	1500	2.160	788
11	1158	1.668	609
12	1791	2.579	941
13	2200	3.168	1,156
14	571	0.822	300
15	1000	1.440	526
16	525	0.756	276
17	500	0.720	263
18	596	0.858	313
19	1500	2.160	788
20	525	0.756	276
21	521	0.750	274
22	1090	1.570	573
23	1056	1.521	555
24	1000	1.440	526
25	1120	1:613	589
26	1400	2.016	736
27	1468	2.114	772

28	1000	1.440	526
29	1000	1.440	526
30	1500	2.160	788
31	1000	1.440	526
32	1209	1.741	635
33	225	0.324	118
34	266	0.383	140
35	1000	1.440	526
36	1000	1.440	526
37	1100	1.584	578
38	1100	1.584	578
39(28A)	160	0.230	84
40(37A)	160	0.230	84
41	525	0.760	276
42	2100	3.024	1,104
TOTAL	53549	127.115	46396

WELL NO.	CASING DEPTH	BORE DEPTH	CASING SIZE	
1	300 FT.	1006 FT.	20 IN.	180 FT.
2	244 FT.	540 FT.	16 IN.	160 FT.
3	220 FT.	700 FT.	24 IN.	150 FT.
4	256 FT.	700 FT.	20 IN.	160 FT.
5	265 FT.	900 FT.	26 IN.	220 FT.
6	240 FT.	750 FT.	12 IN.	180 FT.
7	200 FT.	525 FT.	24 IN.	200 FT.
8	245 FT.	587 FT.	24 IN.	180 FT.
9	267 FT.	710 FT.	20 IN.	220 FT.
10	264 FT.	697 FT.	12 IN.	220 FT.
11	240 FT.	714 FT.	12 IN.	200 FT.
12	265 FT.	550 FT.	14 IN.	200 FT.
13	270 FT.	1000 FT.	12 IN.	215 FT.
14	338 FT.	800 FT.	12 IN.	140 FT.
15	252 FT.	414 FT.	10 IN.	130 FT.
16	250 FT.	650 FT.	12 IN.	140 FT.
17	274 FT.	652 FT.	10 IN.	110 FT.
18		681 FT.	10 IN.	150 FT.
19	280 FT.	660 FT.	12 IN.	120 FT.
20	147 FT.	427 FT.	10 IN.	80 FT.
21	230 FT.	576 FT.	16 IN.	80 FT.
22	148 FT.	352 FT.	16 IN.	100 FT.
23	320 FT.	639 FT.	16 IN.	110 FT.
24	221 FT.	340 FT.	12 IN.	90 FT.
25	287 FT.	540 FT.	10 IN.	200 FT.
26	208 FT.	580 FT.	16 IN.	140 FT.
27	321 FT.	550 FT.	16 IN.	130 FT.

Georgia Department of Natural Resources
205 Butler Street, S.E., Suite 1158, Atlanta, Georgia 30334
Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
404/657-8600

August 19, 1996

TRIP REPORT

SITE NAME AND LOCATION: Landfills #1, #2, #3 - Travis Field
Savannah, Chatham County

TRIP BY: Tracy L. Heard, Environmental Specialist

ACCOMPANIED BY: Mark Smith, Unit Coordinator - HSRA

DATE OF TRIP: August 7-8, 1996

PERSONS CONTACTED: Allen Weathersby, Army Corps of Engineers
John Keiser, Army Corps of Engineers
Mark Sherrill, Metcalf & Eddy

REFERENCES: HSI file #10091

BACKGROUND:

A site visit to 3 Travis Field landfills was conducted by EPD personnel, Army Corps of Engineers personnel, and by Mark Sherrill of Metcalf & Eddy. Metcalf & Eddy is the environmental consultant for the Corps of Engineers. The site visit was conducted in order to gather background information for the preliminary assessment and also to answer any questions that the Corps of Engineers might have concerning the status of the three landfills.

CONCLUSIONS:

Landfill #1

Landfill #1 was visited by EPD on August 8, 1996. The site was entered from a clearing located adjacent to the back corner of the Days Inn Hotel. The site is relatively flat and is overgrown with vegetation. There were a few areas without vegetation. The clearings could be a result of drilling equipment mobilization.

Landfill #2

Landfill #2 was visited by EPD on August 8, 1996. The site was entered from the gas station which is within the intersection of Georgia Highway 307 and Darque Road. A drainage ditch was crossed to enter the site. The ditch appeared to contain some petroleum contamination. The site was wooded and contained multiple areas of old and recent dumping of solid waste. The identification of monitoring well #1 was identified while on site. Some old drums and a few paint cans were identified on site. The topography was indincative of a former landfill.

Landfill #3

Landfill #3 was visited by EPD, the Corps of Engineers, and Mark Sherrill of Metcalf & Eddy, on August 7, 1996. The site was entered from within the intersection of Graham Drive and Airways Avenue. As we walked north from Airways Avenue, a few abandoned drums were identified on site. As we walked eastward along Gulfstream Avenue, a large pond was identified in the center of the landfill site. Eastward of the pond, there was a large hill. The hill could have been formed by the digging of the pond and the stockpiling of the soil and debris. Adjacent to the large hill was a dumping area containing various solid waste such as drums, paint cans, tires, and an old car body. As we hiked out of the landfill area, we passed a large storage area of landscaping and construction debris.

General Conclusion of all three landfill areas:

Landfills #2 and #3 contained visual evidence of recent and old dumping. The topography was also indicative of a former landfill. Landfill #1 may also contain visual evidence of dumping, however the portion of the site that was hiked did not contain any waste. Most of the site is heavily overgrown with vegetation.

RECOMMENDATIONS:

My recommendation is to write the preliminary assessment for EPA and then to decide whether or not the Corps of Engineers' recently submitted Draft Final Report (July 1996) can be amended and accepted as a voluntarily submitted compliance status report (CSR).

REVIEWED BY: Mark O. Smith

FILE: HSI - 10091, Chatham County
R:\TracyH\HSI\trips\travis.trp

U.S. EPA REGION IV

SDMS

Unscannable Material Target Sheet

DocID: 10730240 Site ID: GAD984307918

Site Name: Fry - Travis

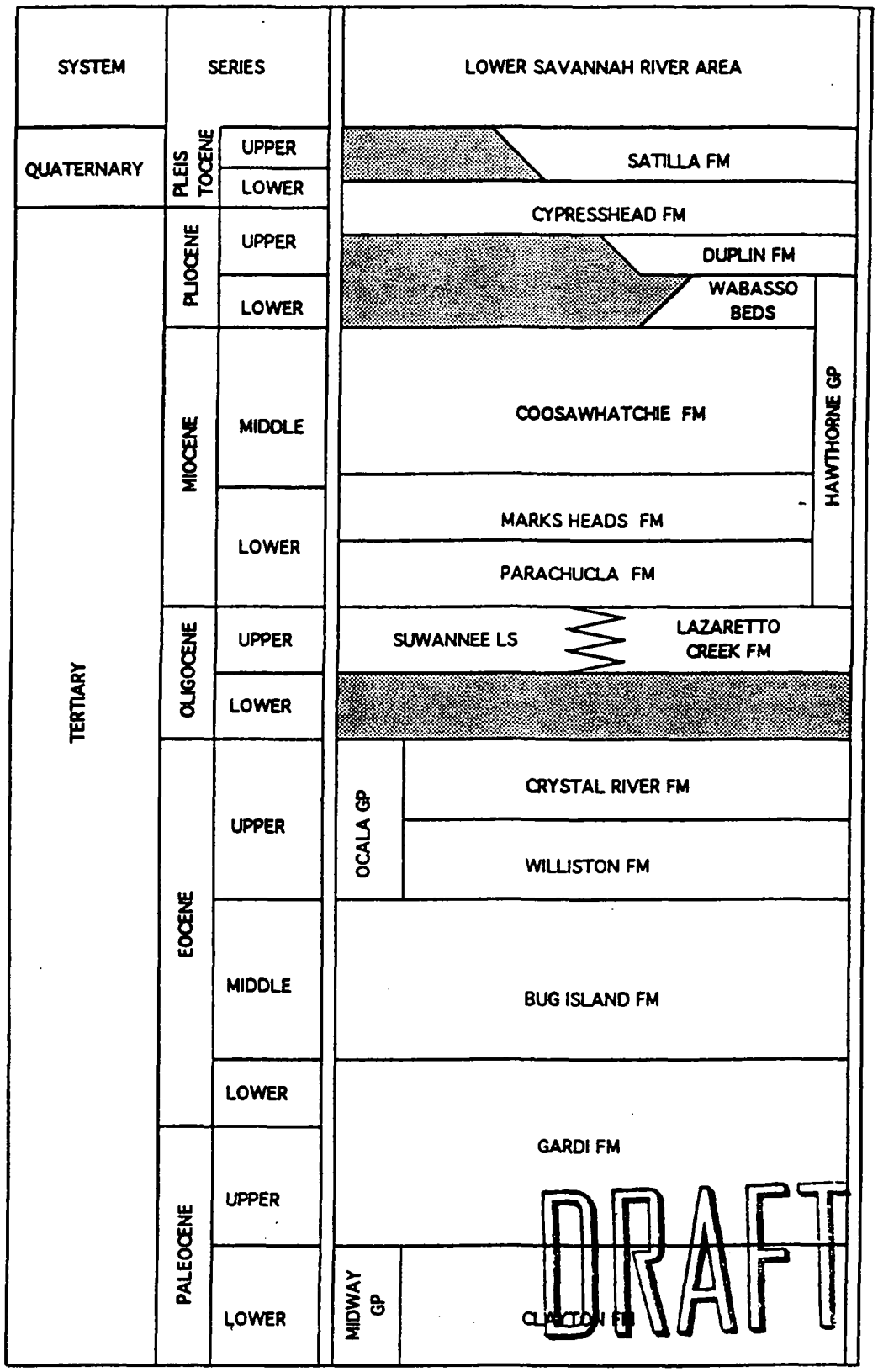
Nature of Material:

Map:	☐	Computer Disks:	☐
Photos:	☑	CD-ROM:	☐
Blueprints:	☐	Oversized Report:	☐
Slides:	☐	Log Book:	☐

Other (describe): Site Photos

Amount of material: _____

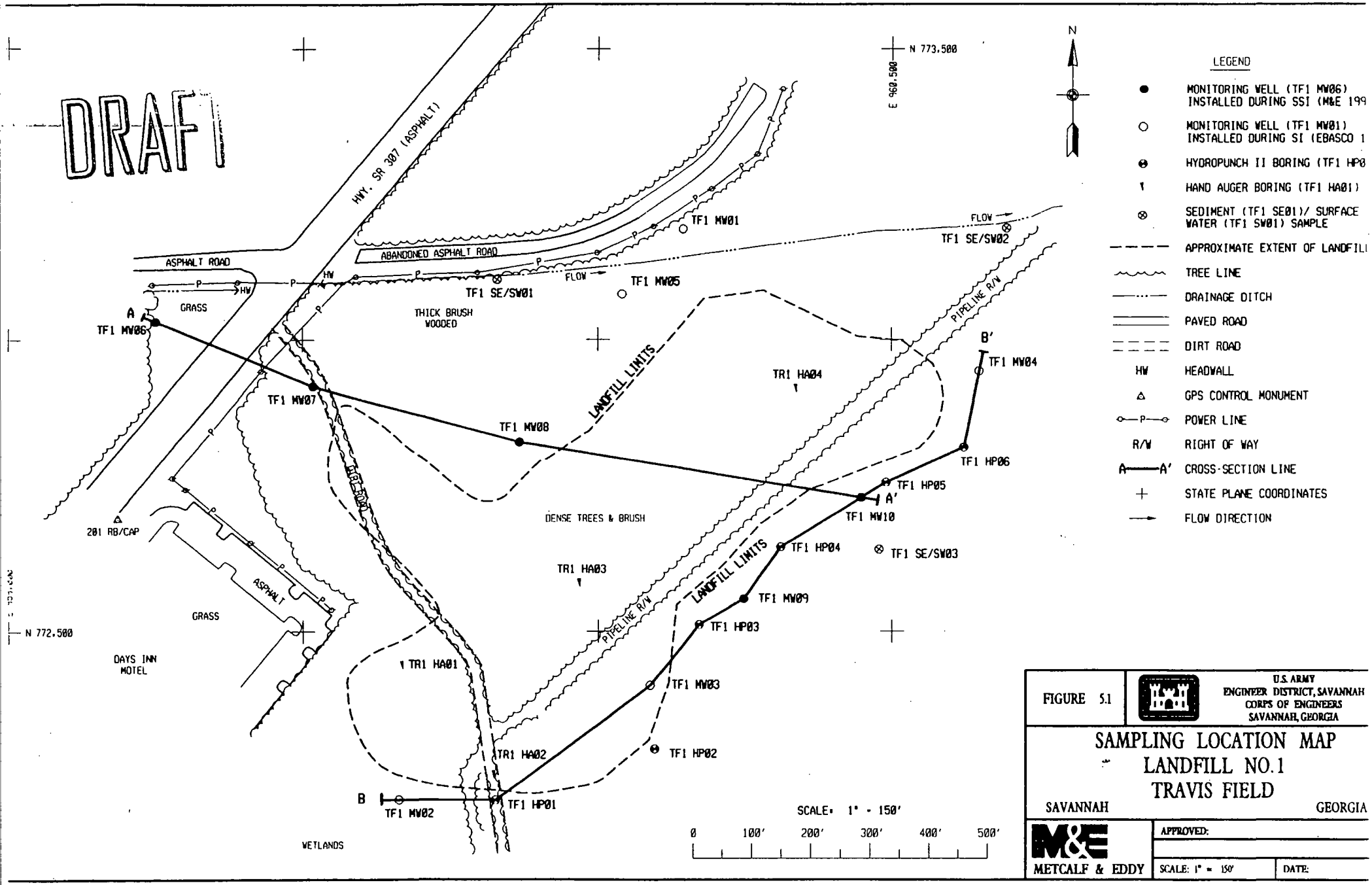
* Please contact the appropriate Records Center to view the material *



SOURCE:

HYDROGEOLOGIC EVALUATION FOR UNDERGROUND INJECTION CONTROL IN THE COASTAL PLAIN OF GEORGIA, HYDROLOGIC ATLAS 10, 1984

FIGURE 3.1
STRATIGRAPHIC COLUMN FOR TRAVIS FIELD AREA


DRAFT
HWY. SR 307 (ASPHALT)
N 773,500
E 960,500
N
LEGEND
MONITORING WELL (TF1 MW06) INSTALLED DURING SSI (M&E 199
MONITORING WELL (TF1 MW01) INSTALLED DURING SI (EBASCO 1
HYDROPUNCH II BORING (TF1 HP0
HAND AUGER BORING (TF1 HA01)
SEDIMENT (TF1 SE01)/ SURFACE WATER (TF1 SW01) SAMPLE
APPROXIMATE EXTENT OF LANDFILL
TREE LINE
DRAINAGE DITCH
PAVED ROAD
DIRT ROAD
HW HEADWALL
GPS CONTROL MONUMENT
POWER LINE
R/W RIGHT OF WAY
A—A' CROSS-SECTION LINE
STATE PLANE COORDINATES
FLOW DIRECTION
ASPHALT ROAD
ABANDONED ASPHALT ROAD
GRASS
THICK BRUSH WOODED
FLOW
TF1 MW01
TF1 SE/SW02
TF1 SE/SW01
TF1 MW05
A
TF1 MW06
TF1 MW07
TF1 MW08
LANDFILL LIMITS
TR1 HA04
PIPELINE R/W
B'
TF1 MW04
TF1 HP06
TF1 HP05
A'
TF1 MW10
DENSE TREES & BRUSH
TF1 HP04
TF1 SE/SW03
TR1 HA03
TF1 MW09
TF1 HP03
201 RB/CAP
ASPHALT
GRASS
N 772,500
DAYS INN MOTEL
TR1 HA01
TF1 MW03
TR1 HA02
TF1 HP02
B
TF1 MW02
TF1 HP01
WETLANDS
SCALE: 1" = 150'
0 100' 200' 300' 400' 500'
FIGURE 5.1
U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA
SAMPLING LOCATION MAP
LANDFILL NO.1
TRAVIS FIELD
SAVANNAH
GEORGIA
M&E
METCALF & EDDY
APPROVED:
SCALE: 1" = 150'
DATE:

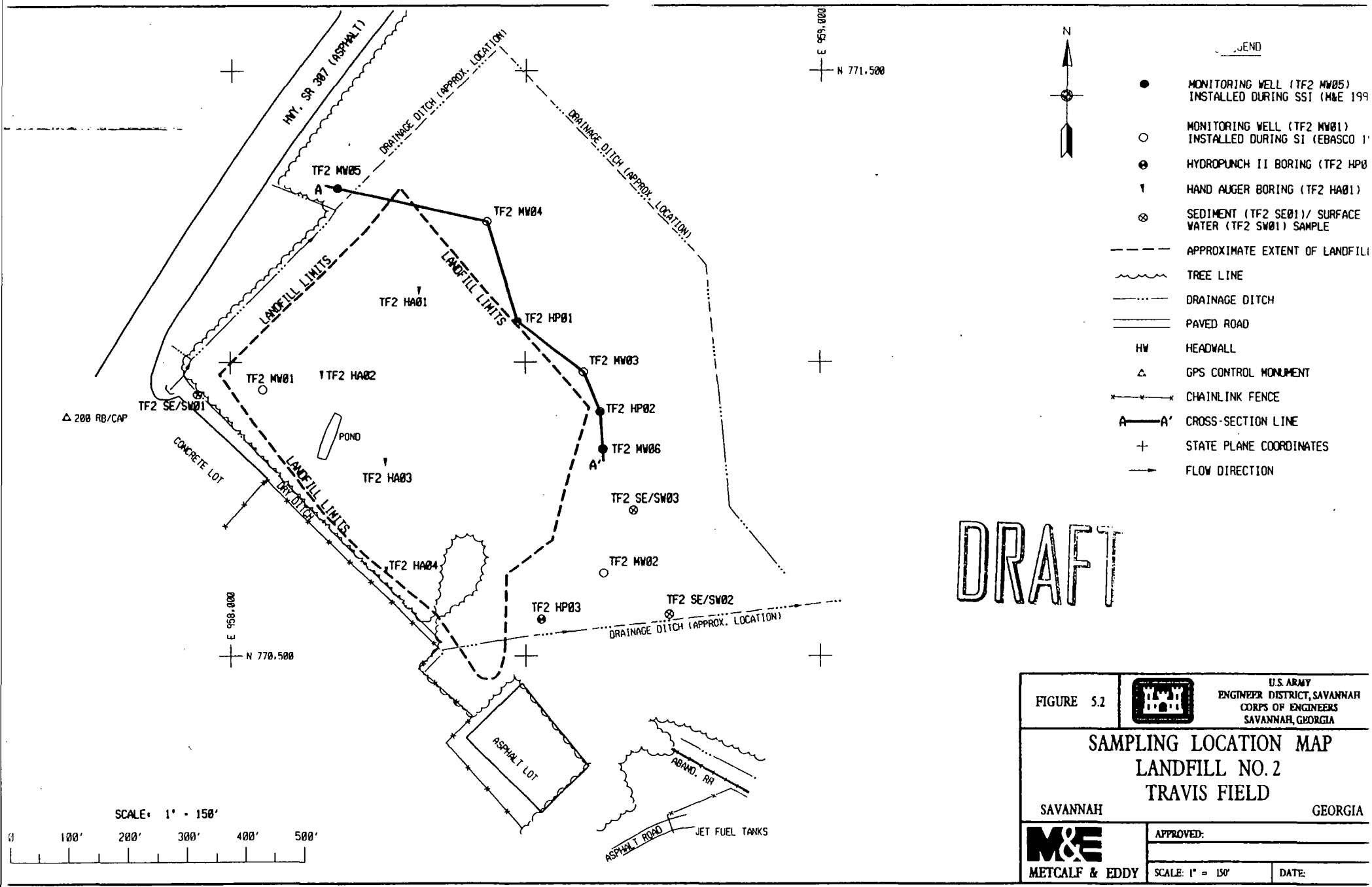


FIGURE 5.2

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SAMPLING LOCATION MAP
LANDFILL NO. 2
TRAVIS FIELD

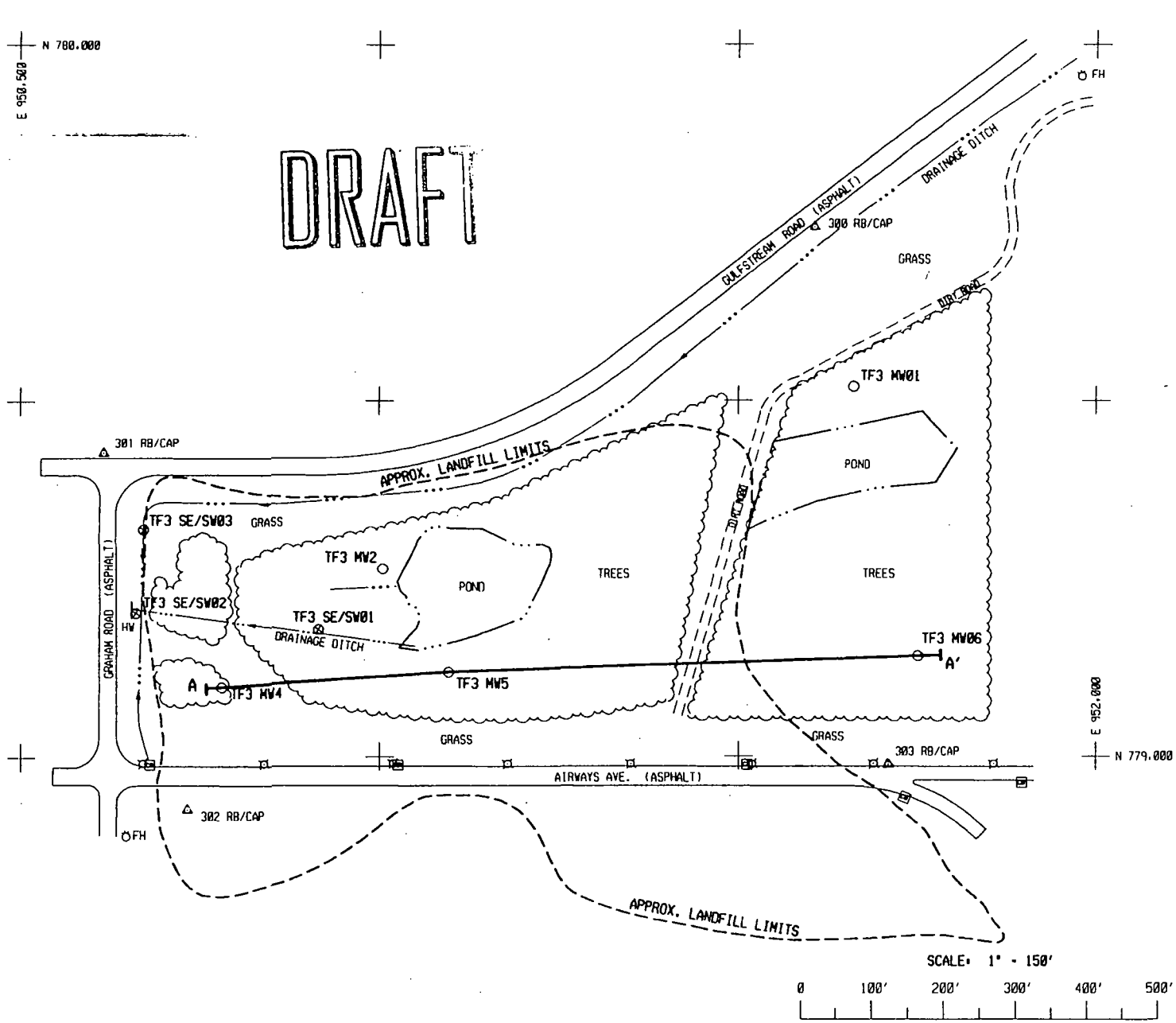
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: 1" = 150'

DATE:



N

LEGEND

- MONITORING WELL (TF3 MW01) INSTALLED DURING SI (EBASCO 199
- SEDIMENT (TF3 SE01)/ SURFACE WATER (TF3 SW01) SAMPLE
- APPROXIMATE EXTENT OF LANDFILL
- TREE LINE
- DRAINAGE DITCH
- PAVED ROAD
- DIRT ROAD
- HW HEADWALL
- GPS CONTROL MONUMENT
- FIRE HYDRANT
- LIGHT POLE
- CATCH BASIN
- A—A' CROSS-SECTION LINE
- STATE PLANE COORDINATES
- FLOW DIRECTION

FIGURE 5.3

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SAMPLING LOCATION MAP
LANDFILL NO. 3
TRAVIS FIELD

SAVANNAH GEORGIA

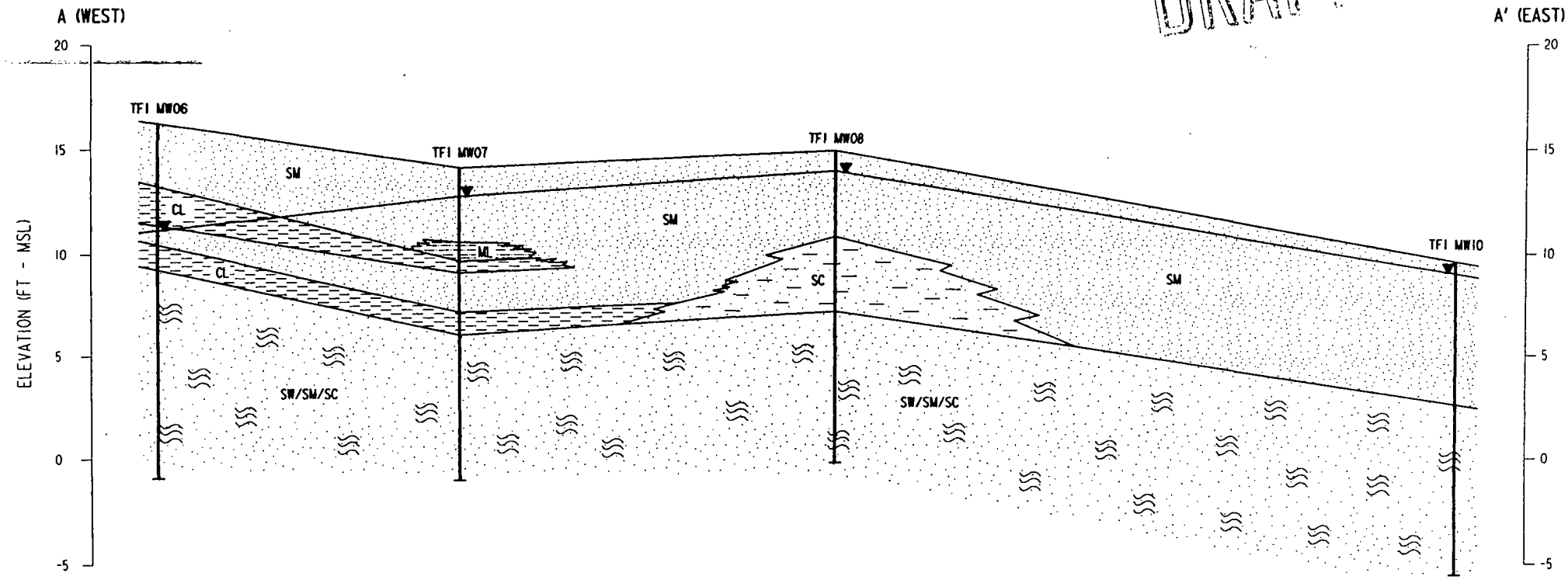
M&E
METCALF & EDDY

APPROVED:

SCALE: 1" = 150'

DATE:

DRAFT



LEGEND

SM :	SAND, SILTY	SW/SM/SC :	SAND, SILTY/CLAYEY, CLAY LAMINAE GRAY-GREEN
ML :	SILT	▼	STATIC WATER LEVEL 11/14/95
CL :	CLAY, SANDY	FT-MSL	FEET ABOVE MEAN SEA LEVEL
SC :	SAND, CLAYEY		

-5' 0 5'
SCALE: 1" = 5' (VERT.)

-100' 0 100'
SCALE: 1" = 100' (HORIZ.)

FIGURE 5.5

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

CROSS SECTION A – A'
LANDFILL NO.1
TRAVIS FIELD

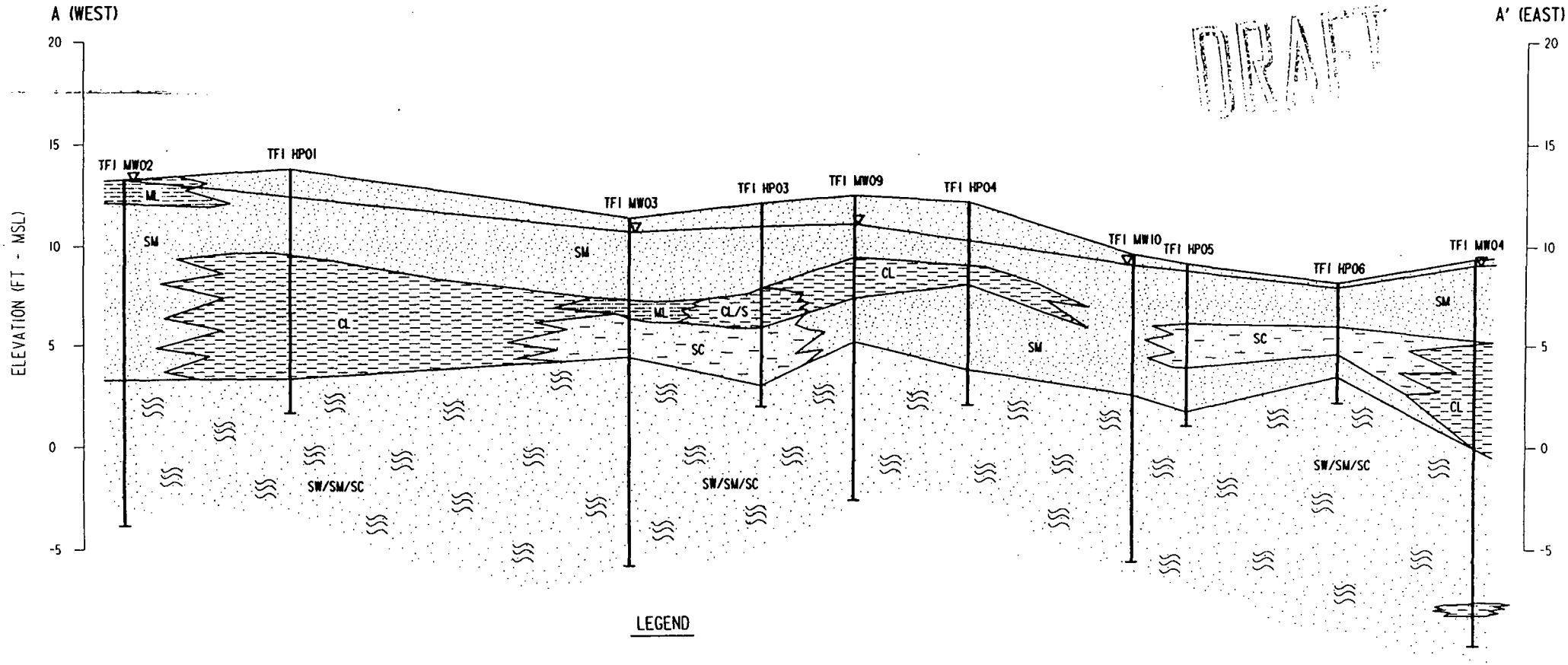
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: AS NOTED

DATE:



LEGEND

SM :	SAND, SILTY	SC :	SAND, CLAYEY
ML :	SILT	SW/SM/SC :	SAND, SILTY/CLAYEY, CLAY LAMINAE GRAY-GREEN
CL :	CLAY	▽	STATIC WATER LEVEL 11/14/95
CL/S :	CLAY AND SAND	FT-MSL	FEET ABOVE MEAN SEA LEVEL

5' 0 5'
SCALE: 1" = 5' (VERT.)

100' 0 100'
SCALE: 1" = 100' (HORIZ.)

FIGURE 5.6

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

CROSS SECTION B – B'
LANDFILL NO. 1
TRAVIS FIELD

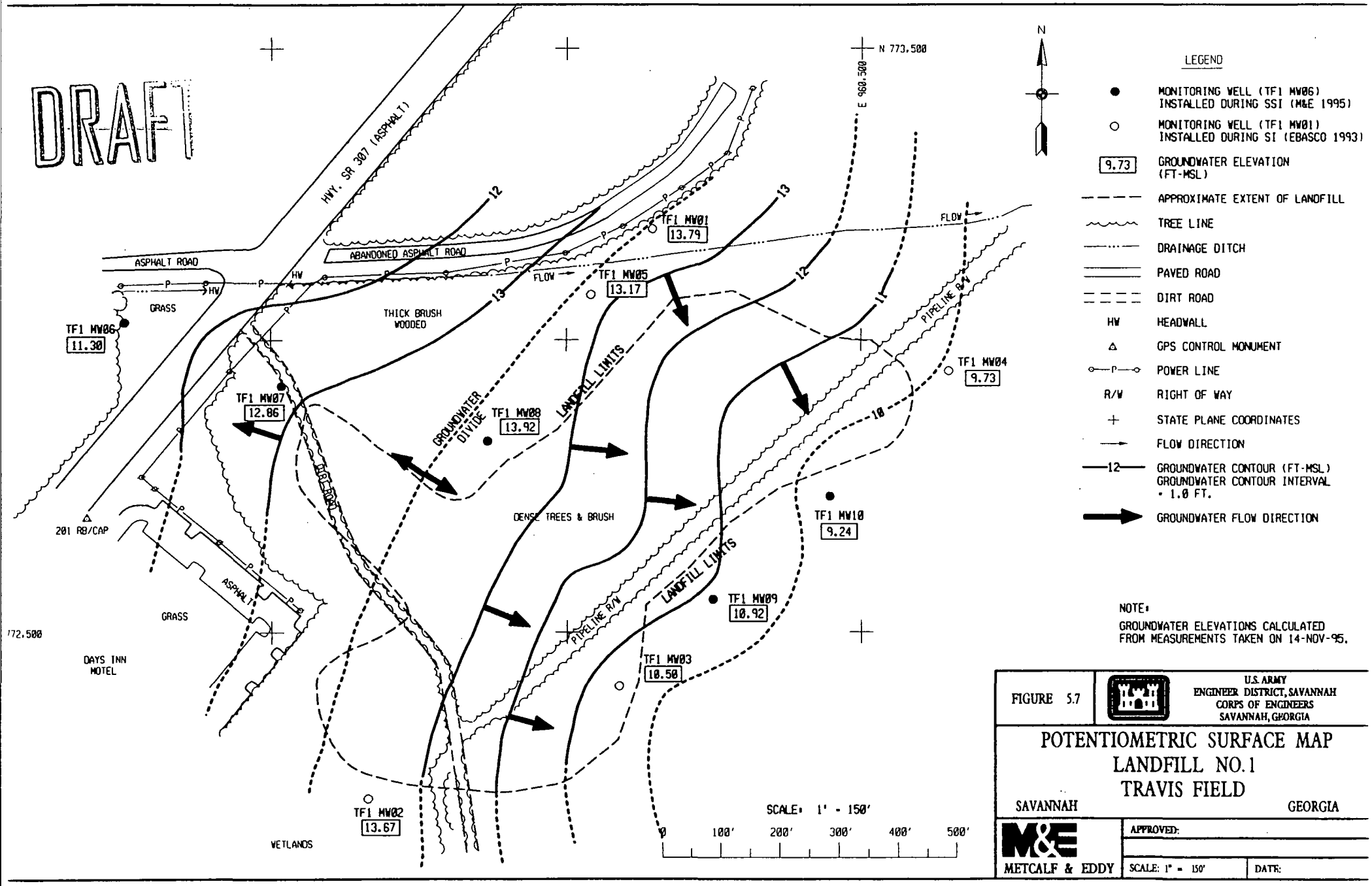
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: AS NOTED

DATE:


DRAFT
HWY. SR 307 (ASPHALT)
ASPHALT ROAD
ABANDONED ASPHALT ROAD
GRASS
THICK BRUSH WOODED
DENSE TREES & BRUSH
GROUNDWATER DIVIDE
LANDFILL LIMITS
PIPELINE R/W
DIRT ROAD
FLOW
201 RB/CAP
DAYS INN MOTEL
WETLANDS
N 773,500
E 980,500
772,500
TF1 MW06 11.30
TF1 MW07 12.86
TF1 MW08 13.92
TF1 MW01 13.79
TF1 MW05 13.17
TF1 MW04 9.73
TF1 MW10 9.24
TF1 MW09 10.92
TF1 MW03 10.50
TF1 MW02 13.67
SCALE: 1" - 150'
0 100' 200' 300' 400' 500'
N
LEGEND
MONITORING WELL (TF1 MW06) INSTALLED DURING SSI (M&E 1995)
MONITORING WELL (TF1 MW01) INSTALLED DURING SI (EBASCO 1993)
9.73 GROUNDWATER ELEVATION (FT-MSL)
APPROXIMATE EXTENT OF LANDFILL
TREE LINE
DRAINAGE DITCH
PAVED ROAD
DIRT ROAD
HW HEADWALL
GPS CONTROL MONUMENT
POWER LINE
R/W RIGHT OF WAY
STATE PLANE COORDINATES
FLOW DIRECTION
12 GROUNDWATER CONTOUR (FT-MSL) GROUNDWATER CONTOUR INTERVAL = 1.0 FT.
GROUNDWATER FLOW DIRECTION
NOTE:
GROUNDWATER ELEVATIONS CALCULATED FROM MEASUREMENTS TAKEN ON 14-NOV-95.
FIGURE 5.7
U.S. ARMY ENGINEER DISTRICT, SAVANNAH CORPS OF ENGINEERS SAVANNAH, GEORGIA
POTENTIOMETRIC SURFACE MAP
LANDFILL NO.1
TRAVIS FIELD
SAVANNAH GEORGIA
M&E METCALF & EDDY
APPROVED:
SCALE: 1" = 150'
DATE:

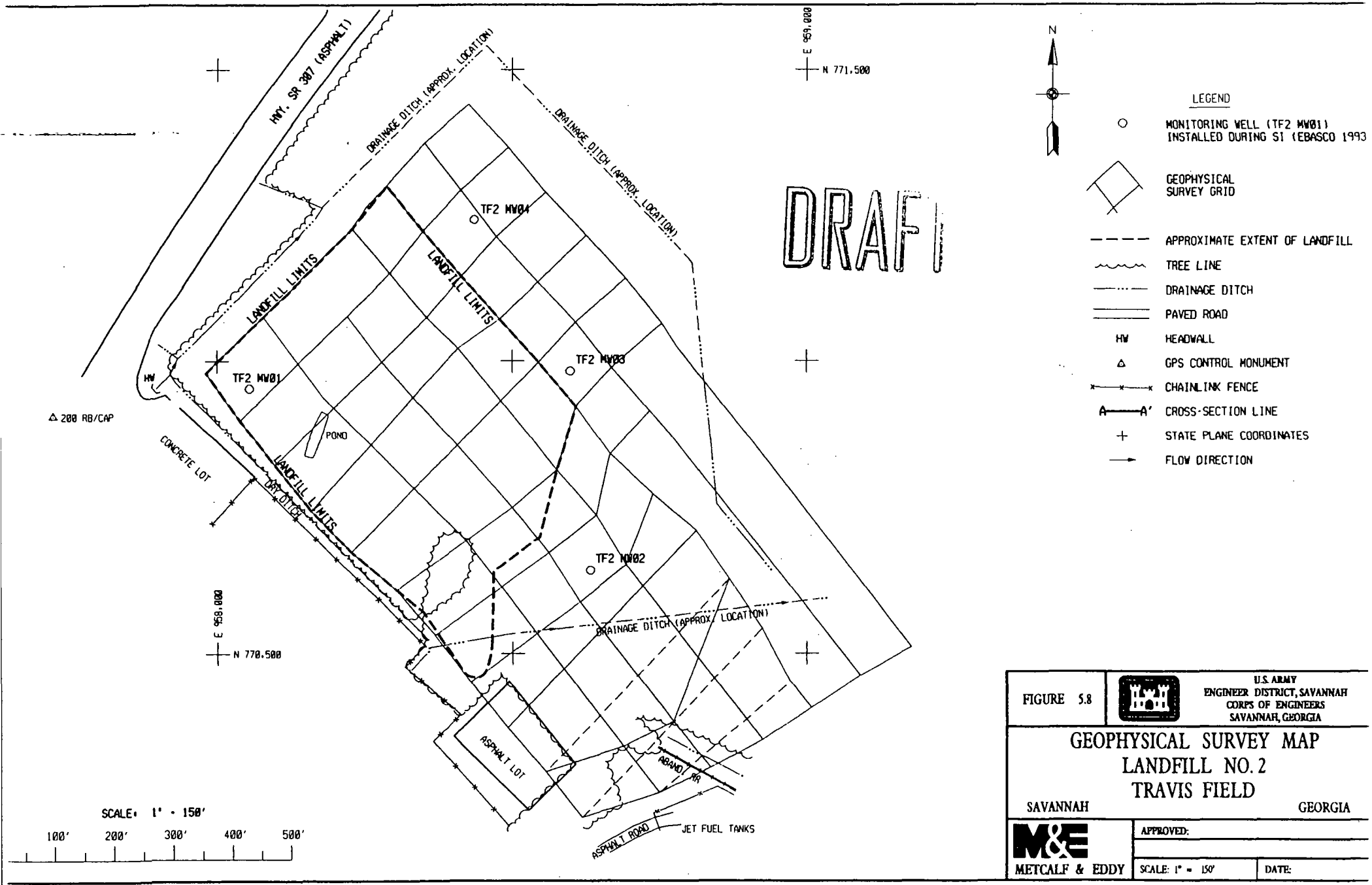


FIGURE 5.8

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

GEOPHYSICAL SURVEY MAP
LANDFILL NO. 2
TRAVIS FIELD

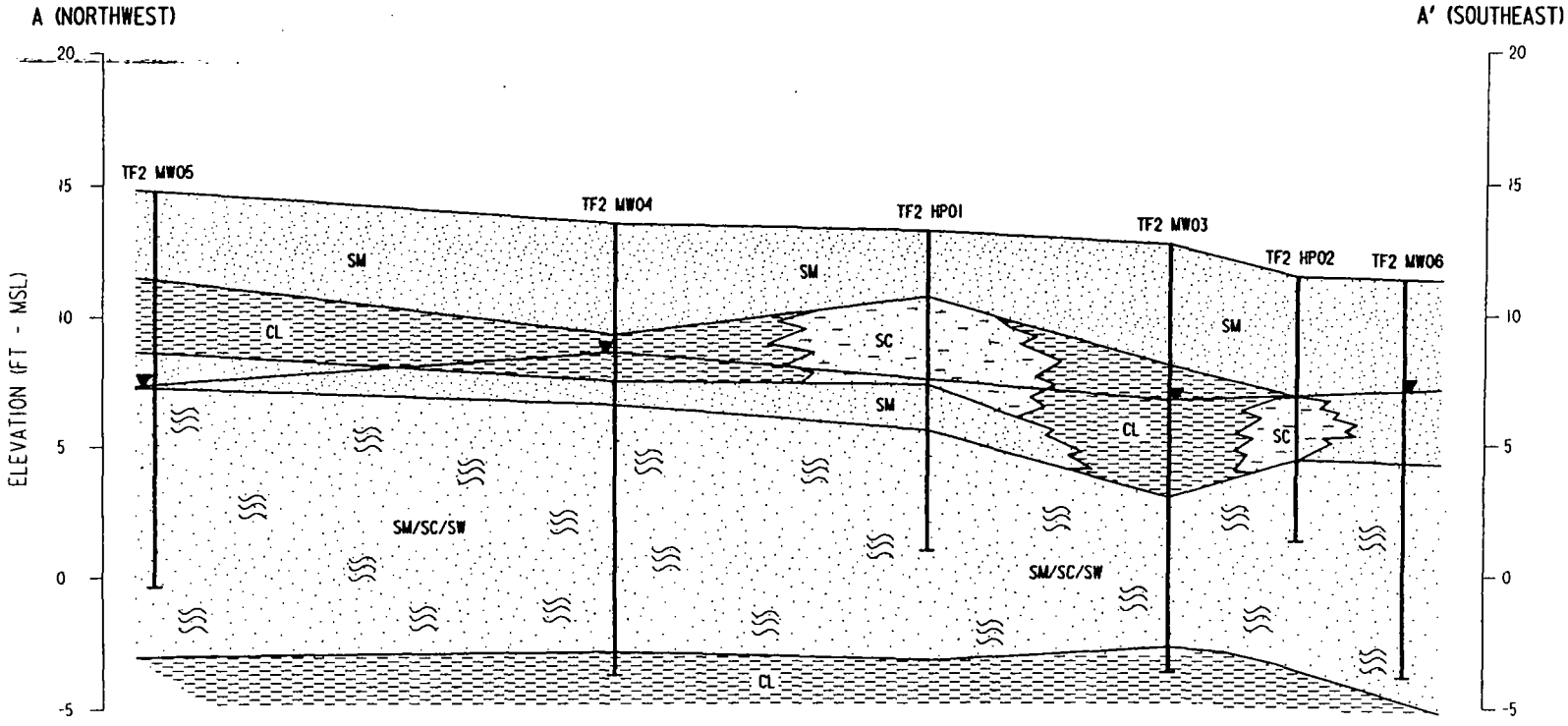
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: 1" = 150'

DATE:



DRAFT

LEGEND

SM : SAND, SILTY

CL : CLAY, SANDY

SC : SAND, CLAYEY

SM/SC/SW : SAND, SILTY/CLAYEY, CLAY LAMINAE GRAY-GREEN

STATIC WATER LEVEL 11/15/95

FT-MSL FEET ABOVE MEAN SEA LEVEL

-5' 0 5'
SCALE: 1" = 5' (VERT.)

-75' 0 75'
SCALE: 1" = 75' (HORIZ.)

FIGURE 5.9

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

CROSS SECTION A - A'
LANDFILL NO. 2
TRAVIS FIELD

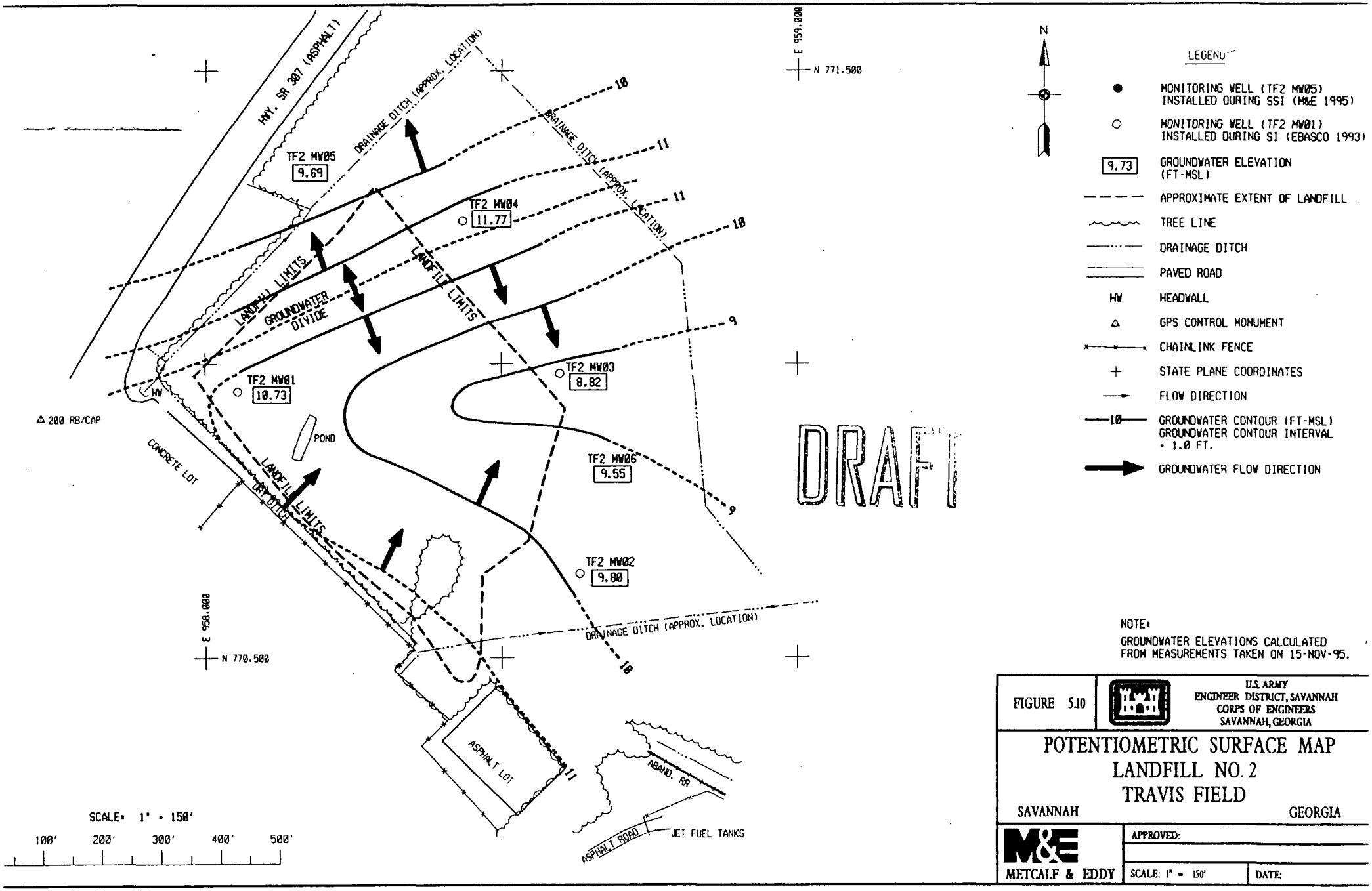
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: AS NOTED

DATE:



NOTE:
GROUNDWATER ELEVATIONS CALCULATED FROM MEASUREMENTS TAKEN ON 15-NOV-95.

FIGURE 5.10

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

POTENTIOMETRIC SURFACE MAP
LANDFILL NO. 2
TRAVIS FIELD

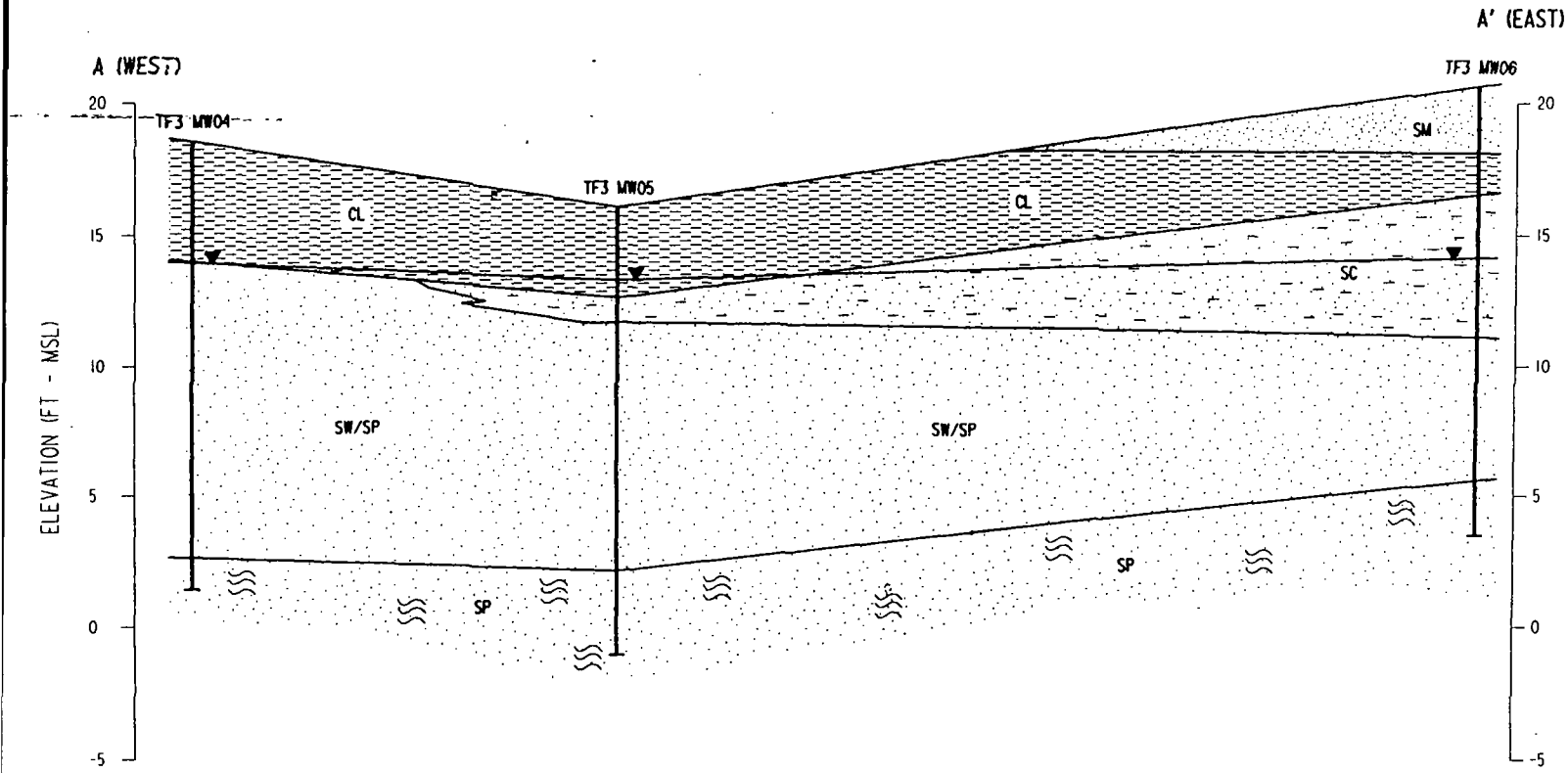
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: 1" = 150'

DATE:



DRAFT

LEGEND

SM :	SAND, SILTY	SP :	SAND, CLAY LAMINAE, POOR SORTING
CL :	CLAY, SANDY	▼	STATIC WATER LEVEL 11/18/95
		FT-MSL	FEET ABOVE MEAN SEA LEVEL
SC :	SAND, CLAYEY		
SW/SP :	SAND, WELL SORTING-POOR SORTING		

-5' 0 5'

SCALE: 1" = 5' (VERT.)

-100' 0 100'

SCALE: 1" = 100' (HORIZ.)

FIGURE 5.11

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

CROSS SECTION A - A'
LANDFILL NO. 3
TRAVIS FIELD

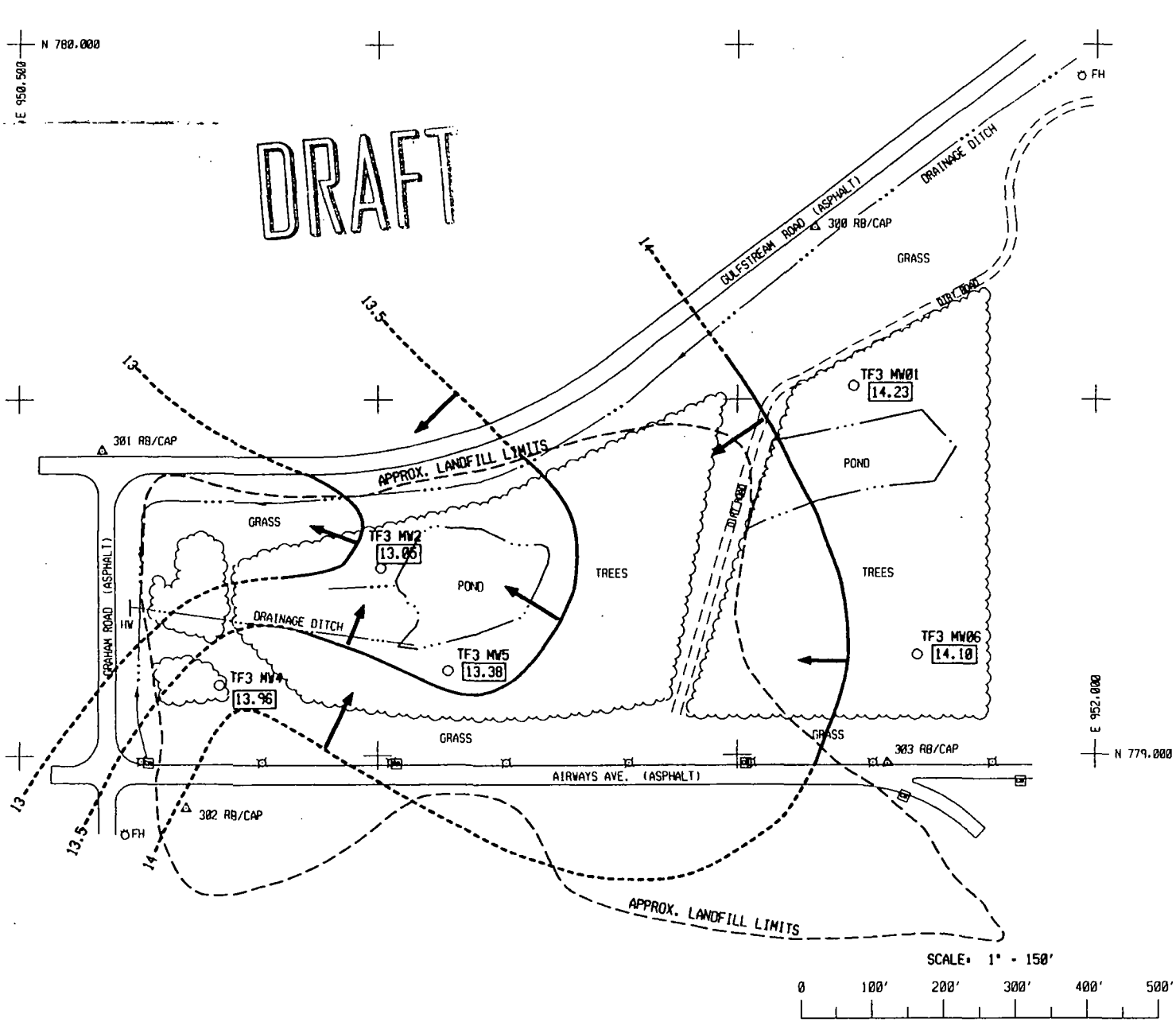
SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: AS NOTED

DATE:



N

LEGEND

- ○ MONITORING WELL (TF3 MW01) INSTALLED DURING SI (EBASCO 1993)
- [9.73] GROUNDWATER ELEVATION (FT-MSL)
- APPROXIMATE EXTENT OF LANDFILL
- TREE LINE
- DRAINAGE DITCH
- PAVED ROAD
- DIRT ROAD
- HW HEADWALL
- △ GPS CONTROL MONUMENT
- FIRE HYDRANT
- LIGHT POLE
- CATCH BASIN
- + STATE PLANE COORDINATES
- → FLOW DIRECTION
- —12— GROUNDWATER CONTOUR (FT-MSL) GROUNDWATER CONTOUR INTERVAL = 0.5 FT.
- ➡ GROUNDWATER FLOW DIRECTION

NOTES:

1. GROUNDWATER ELEVATIONS CALCULATED FROM MEASUREMENTS TAKEN ON 18-NOV-95.
2. LANDFILL BOUNDARIES TAKEN FROM SITE INVESTIGATION REPORT, EBASCO ENVIRONMENTAL, AUG. 1993.

FIGURE 5.12

U.S. ARMY
ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

POTENTIOMETRIC SURFACE MAP
LANDFILL NO. 3
TRAVIS FIELD

SAVANNAH GEORGIA

M&E
METCALF & EDDY

APPROVED:

SCALE: 1" = 150'

DATE:

TABLE 7-1
TRAVIS FIELD SUPPLEMENTAL SI
LANDFILL No. 1
SUMMARY OF CONSTITUENTS DETECTED IN SURFACE WATER

SITE: SAMPLE ID: DATE: UNITS:	GEORGIA IN - STREAM WQS (1) ug/L	TF1SWE01 TF1-SW0101 11/14/95 ug/L	TF1SWE02 TF1-SW0201 11/14/95 ug/L	TF1SWE03 TF1-SW0301 11/14/95 ug/L
VOLATILE ORGANICS				
		U	U	U
SEMIVOLATILE ORGANICS				
	NA	U	U	U
PESTICIDES & PCBs				
	NA	U	U	U
EXTRACTABLE TPH (DRO)				
	NA	U	U	U
PRIORITY POLLUTANT METALS				
Lead	1.3 (a)	U	U	14
Zinc	60(a)	U	U	160

(1) - Water Quality Standard.
(a) - At hardness levels less than 100 mg/L.
Note: Shaded results exceed criteria.

NA - Not applicable.
U - Not detected.

DRAFT

TABLE 7-8
TRAVIS FIELD SUPPLEMENTAL SI
LANDFILL No. 2
SUMMARY OF CONSTITUENTS DETECTED IN SURFACE WATER

SITE:	GEORGIA	TF2SWE01	TF2SWE02
SAMPLE ID:	IN - STREAM	TF2-SW0101	TF2-SW0201
DATE:	WQS (1)	11/15/96	11/15/96
UNITS:	ug/L	ug/L	ug/L
VOLATILE ORGANICS			
		U	U
SEMIVOLATILE ORGANICS			U
bis(2-Ethylhexyl) phthalate	5.92	20	
PESTICIDES & PCBs			
	(b)	U	U
EXTRACTABLE TPH (DRO)			
TPH (as diesel)	(b)	21000	U
PRIORITY POLLUTANT METALS			
Arsenic	50	U	26
Lead	1.3(a)	U	19
Zinc	60(a)	68	72

(1) - Water Quality Standards.
(a) - At hardness levels less than 100 mg/L.
(b) - HSRA groundwater criteria.
Note: Shaded results exceed criteria.

NA - Not applicable.
U - Not detected.

DRAFT

TABLE 7-15
TRAVIS FIELD SUPPLEMENTAL SI
LANDFILL No. 3
SUMMARY OF CONSTITUENTS DETECTED IN SURFACE WATER

SITE: SAMPLE ID: DATE: UNITS:	GEORGIA IN-STREAM WQS (1) ug/L	TF3SWE01 TF3-SW0101 11/19/95 ug/L	TF3SWE02 TF3-SW0201 11/19/95 ug/L	TF3SWE03 TF3-SW0301 11/19/95 ug/L
VOLATILE ORGANICS				
		U	U	U
SEMIVOLATILE ORGANICS				
	NA	U	U	U
PESTICIDES & PCBs				
	NA	U	U	U
EXTRACTABLE TPH (DRO)				
	NA	U	U	U
PRIORITY POLLUTANT METALS				
	NA	U	U	U

(1) - Water Quality Standards.

NA - Not applicable.
U - Not detected.

DRAFT

APPENDIX A

OMB Approval Number: 2050-0095
Approved for Use Through: 1/92

PA Scoresheets

Site Name: Travis Field

CERCLIS ID No.: 05843

Street Address: Savannah Airport

City/State/Zip: Savannah, Georgia

Investigator: Tracy L. Heard

Agency/Organization: GA EPD

Street Address: 205 Butler St, SE Ste. 1462

City/State/Zip: Atlanta, Georgia 30334

Date: Sept. 25, 1996

GENERAL INFORMATION

Site Description and Operational History:

The Travis Field site consists of three abandoned landfills located on the former Chatham Army Airfield. The airport is now owned and operated by the City of Savannah as the Savannah International Airport. Travis Field is located in the northwest quadrant of Chatham County, Georgia, approximately 8 miles northwest of Savannah, Georgia. All three of the sites are located off of Georgia State Route 307 (Dean Forest Road).

Landfill No. 1 is an inactive landfill located at LAT 32° 7' 12.65"/LONG 81° 11' 5.8", which is approximately 750 feet east of State Route 307. Landfill No. 1 is the largest of the three landfill areas and covers approximately 15 acres. The landfill was built on a former wetland and is surrounded by wetland areas. Although the site topography is rather flat, access to the site is difficult due to dense brush and trees.

Landfill No. 2 is an inactive landfill located at LAT 32° 7' 5.17"/LONG 81° 11' 18.3". It is also located off of State Route 307 and is located southwest of landfill no. 1. The landfill covers approximately 7 acres. A drainage ditch borders the southern boundary of the site. An active gas station and a Georgia Air National Guard (GANG) Petroleum, Oils and Lubricant (POL) depot are located across the drainage ditch from the site. This landfill was also built on a former wetland and is heavily overgrown with vegetation making access to the site difficult.

Landfill No. 3 is an inactive landfill located at LAT 32° 8' 16.71"/LONG 81° 12' 49.65" The site is located between Gulfstream Road and Airways Road in the northwest quadrant of the Savannah International Airport. The site covers approximately 12 acres and is located approximately 1,000 feet northwest of the air traffic control tower. A large pond is located in the middle of the site. Adjacent to the pond is a large hill which may be a result from previously excavating the area that is now the pond. The site is located in a wetland habitat. St. Augustine Creek is located across Gulfstream Road from the site [Ref. 1].

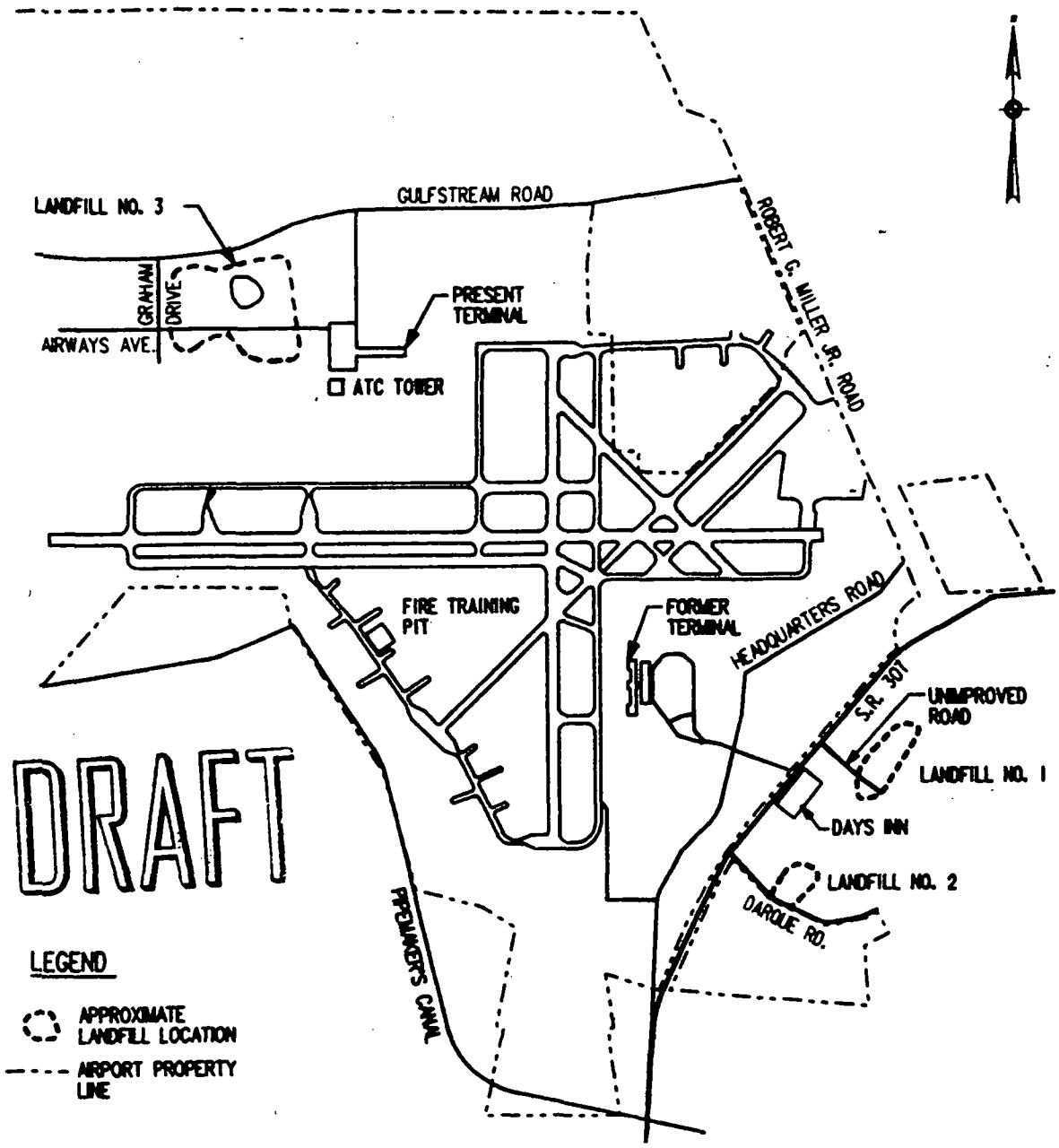
Probable Substances of Concern:
(Previous investigations, analytical data)

Documented disposed material at the three landfills consists of construction material/debris, appliance parts, pole timbers, shingles (suspected asbestos-containing materials), unlabelled drums of unknown content, spent oil filters, paint cans, and car parts.

Contaminants which have been detected in the soil and groundwater at the site are: acetone, arsenic, beryllium, bis (2-ethylhexyl) phthalate, cadmium, carbon disulfide, chromium, copper, indeno (1,2,3-cd) pyrene, lead, mercury, methylene chloride, m-xylene, silver, toluene, and zinc. Minor concentrations os 4-4' DDD, 4'4 DDE, and 4-4' DDT have also been detected.

GENERAL INFORMATION (continued)

Site Sketch:
(Show all pertinent features, indicate sources and closest targets, indicate north)



SOURCE EVALUATION

Source No.: 1	Source Name: Landfill no. 1	Source Waste Quantity (WQ) Calculations:
Source Description: An inactive landfill consisting of approximately 15 acres per the Corps of Engineers report [Ref. 1]		15 acres ÷ 0.078 = 192 WC = 32

Source No.: 2	Source Name: Landfill no. 2	Source Waste Quantity (WQ) Calculations:
Source Description: An inactive landfill consisting of approximately 7 acres per the Corps of Engineers report [Ref. 1]		7 acres ÷ 0.078 = 89.7 WC = 18

Source No.: 3	Source Name: Landfill no. 3	Source Waste Quantity (WQ) Calculations:
Source Description: An inactive landfill consisting of approximately 12 acres per the Corps of Engineers report [Ref. 1]		12 acres ÷ 0.078 = 153.8 WC = 32

32 + 18 + 32 = 82
>0 to 100 = 18

Site WC: 18

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	WC = 32	WC = 100	Formula for Assigning Source WC Values
[illegible]	N/A	≤100 lb	>100 to 10,000 lb	>10,000 lb	lb ÷ 1
[illegible]	N/A	≤500,000 lb	>500,000 to 50 million lb	>50 million lb	lb ÷ 5,000
VOLUME	Landfill	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Surface impoundment	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Drums	≤1,000 drums	>1,000 to 100,000 drums	>100,000 drums	drums ÷ 10
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons	>5 million gallons	gallons ÷ 500
	Contaminated soil	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Pile	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Other	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
AREA	Landfill	≤340,000 ft² ≤7.8 acres	>340,000 to 34 million ft² >7.8 to 780 acres	>34 million ft² >780 acres	ft² ÷ 3,400 acres ÷ 0.078
	Surface impoundment	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Contaminated soil	≤3.4 million ft² ≤78 acres	>3.4 million to 340 million ft² >78 to 7,800 acres	>340 million ft² >7,800 acres	ft² ÷ 34,000 acres ÷ 0.78
	Pile*	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Land treatment*	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft² >0.62 to 62 acres	>2.7 million ft² >62 acres	ft² ÷ 270 acres ÷ 0.0062

1 ton = 2,000 lb = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WS Total	WC Score
>0 to 100	18
>100 to 10,000	32
>10,000	100

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Water in all the Coastal Plain aquifers is present primarily in intergranular pore spaces between sand grains and secondarily in solution cavities in carbonate rocks. In the Travis Field area, the surficial aquifer system consists of the Satilla Formation, the Cypresshead Formation, and the Coosawhatchie Formation of the Hawthorn Group (stratigraphic column is located int he appendix). A dense phosphatic silty clay of the Coosawhatchie acts as a basal confining unit. Generally, the surficial aquifer system in under unconfined or water-table conditions. Locally, thin beds of clay create confined or semi-confined conditions. Water in the aquifer system flows east to the coast, and the water level near the coast is influenced by tidal changes. The thickness of the aquifer in the Travis Field area is about 170 feet [Ref. 5].

The Miocene aquifer system in the site area underlies the surficial aquifer system and consists of the poorly sorted, fine- to coarse-grained, slightly phosphatic and dolomitic quartz sand of the Markshead Formation of the Hawthorn Group. The Miocene aquifer system is under confined conditions and is recharged where Miocene sediments outcrop northwest of the Travis Field area. The thickness of the aquifer ranges from about 20 to 150 feet, and it is approximately 80 feet in the Travis Field area [Ref. 5].

Beneath the Miocene aquifer system is the Upper Floridian aquifer. The Upper Floridian aquifer consists of a thick sequence of carbonate rocks belonging to the Suwanee and Ocala Limestone. Depth to the top of the Upper Floridian aquifer in the Travis Field area is about 250 feet. The dense dolomitic limestone of the Ocala Limestone acts as a semi-confining basal unit. The aquifer is under confined conditions and is recharged northwest and west of the coastal area of Georgia. Water levels in this aquifer respond to seasonal climatic changes, and in the Savannah area groundwater flows toward the pumping center created by water withdrawal from City of Savannah wells. The thickness of the Upper Floridian aquifer ranges from 200 to 700 feet, and it is approximately 250 feet thick in the Savannah area.

(LANDFILLS #1 & #2) LAT 32° 7' 9" / LONG 81°11' 12.51"

RANGE	POPULATION	TOTAL HOUSEHOLDS	HOUSEHOLDS ON PRIVATE WATER	HOUSEHOLDS ON PUBLIC WATER	POP. SERVED BY PRIVATE WATER	POP. SERVED BY PUBLIC WATER
0 - 0.25 miles	0	0	0	0	0	0
0.25 - 0.5 miles	55	25	15	10	35	20
0.5 - 1 mile	604 (*659*)	55 (*80*)	12 (*27*)	43 (*53*)	28 (*63*)	576 (*596*)
1 - 2 miles	3249 (*3908*)	1081 (*1161*)	36 (*63*)	1045 (*1098*)	86 (*149*)	3163 (*3759*)
2 - 3 miles	8815 (*12,723*)	3346 (*4507*)	264 (*327*)	3082 (*4180*)	662 (*811*)	8153 (*11,912*)
3 - 4 miles	5243 (*17,966*)	1872 (*6379*)	435 (*762*)	1437 (*5617*)	1222 (*2033*)	4021 (*15,933*)

(LANDFILL #3) LAT 32° 8' 16.71" / LONG 81° 12' 49.65"

RANGE	POPULATION	TOTAL HOUSEHOLDS	HOUSEHOLDS ON PRIVATE WATER	HOUSEHOLDS ON PUBLIC WATER	POP. SERVED BY PRIVATE WATER	POP. SERVED BY PUBLIC WATER
0 - 0.25 miles	0	0	0	0	0	0
0.25 - 0.5 miles	0	0	0	0	0	0
0.5 - 1 mile	4	2	1	1	2	2
1 - 2 miles	926 (*930*)	214 (*216*)	122 (123)	92 (93)	527 (*529*)	399 (*401*)
2 - 3 miles	4397 (*5327*)	1397 (*1613*)	153 (*276*)	1244 (*1337*)	481 (*1010*)	3916 (*4317*)
3 - 4 miles	7983 (*13,310*)	2817 (*4430*)	280 (*556*)	2537 (*3874*)	793 (*1803*)	7190 (*11,507*)

GROUND WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☒	☐	☐	Are sources poorly contained?
☒	☐	☐	Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)?
☐	☐	☒	Is waste quantity particularly large?
☒	☐	☐	Is precipitation heavy?
☒	☐	☐	Is the infiltration rate high?
☐	☒		Is the site located in an area of karst terrain?
☒	☐	☐	Is the subsurface highly permeable or conductive?
☐	☐	☒	Is drinking water drawn from a shallow aquifer?
☐	☒	☐	Are suspected contaminants highly mobile in ground water?
☒	☐	☐	Does analytical or circumstantial evidence suggest ground water contamination?
☐	☐		Other criteria? _____
☒	☐		SUSPECTED RELEASE?

PRIMARY TARGETS

Yes	No	Unk	
☒	☐	☐	Is any drinking water well nearby?
☐	☐	☒	Has any nearby drinking water well been closed?
☐	☒	☐	Has any nearby drinking water user reported foul-tasting or foul-smelling water?
☒	☐	☐	Does any nearby well have a large drawdown or high production rate?
☐	☒	☐	Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance?
☐	☒	☐	Does analytical or circumstantial evidence suggest contamination at a drinking water well?
☐	☒	☐	Does any drinking water well warrant sampling?
☐	☐		Other criteria? _____
☐	☒		PRIMARY TARGET(S) IDENTIFIED?

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Analytical evidence of groundwater contamination from two different sampling periods

Summarize the rationale for Primary Targets (attach an additional page if necessary):

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes X	No ___
Is the site located in karst terrain?	Yes ___	No X
Depth to aquifer:	250 ft	
Distance to the nearest drinking water well:	1320 ft	

LIKELIHOOD OF RELEASE	A *Suspected Release*	B *No Suspected Release*	*References*
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550. Use only column A for this pathway.	550		1,3
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			
LR =	550	-	

TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water wells that you suspect have been exposed to a hazardous substance from the site (see Ground Water Pathway Criteria List, page 7). ___ people x 10 =	0		10
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water wells that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes ___ No X. If yes, attach a page to show apportionment calculations.	224		10
5. NEAREST WELL: If you have identified a primary target population for ground water, assign a score of 50; otherwise, assign the Nearest Well score from PA Table 2. If no drinking water wells exist within 4 miles, assign a score of zero.	18		10
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA, or if you have identified any primary target well within a WHPA, assign a score of 20; assign 5 if neither condition holds but a WHPA is present within 4 miles; otherwise assign zero.	5		9
7. RESOURCES	5		1,3
T =	252		

WASTE CHARACTERISTICS		
8. A. If you have identified any primary target for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	-	
B. If you have NOT identified any primary target for ground water, assign the waste characteristics score calculated on page 4.	18	
WC =	18	

GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ (subject to a maximum of 100) **30**

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (above highest)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	Population Value
0 to ¼ mile	0	20	1	2	6	16	52	163	521	1,633	5,214	16,326	0
> ¼ to ½ mile	55	18	1	1	3	10	32	101	323	1,012	3,233	10,121	3
> ½ to 1 mile	604	8	1	1	2	5	17	52	167	522	1,668	5,224	17
> 1 to 2 miles	3249	5	1	1	1	3	9	29	94	294	939	2,938	94
> 2 to 3 miles	8815	3	1	1	1	2	7	21	68	212	678	2,122	68
> 3 to 4 miles	5243	2	1	1	1	1	4	13	42	131	417	1,306	42

Nearest Well = 18

Score = 224

PA Table 2b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	Population Value
0 to ¼ mile		20	1	2	6	16	52	163	521	1,633	5,214	16,326	
> ¼ to ½ mile		20	1	1	3	10	32	101	323	1,012	3,233	10,121	
> ½ to 1 mile		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 1 to 2 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 2 to 3 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 3 to 4 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	

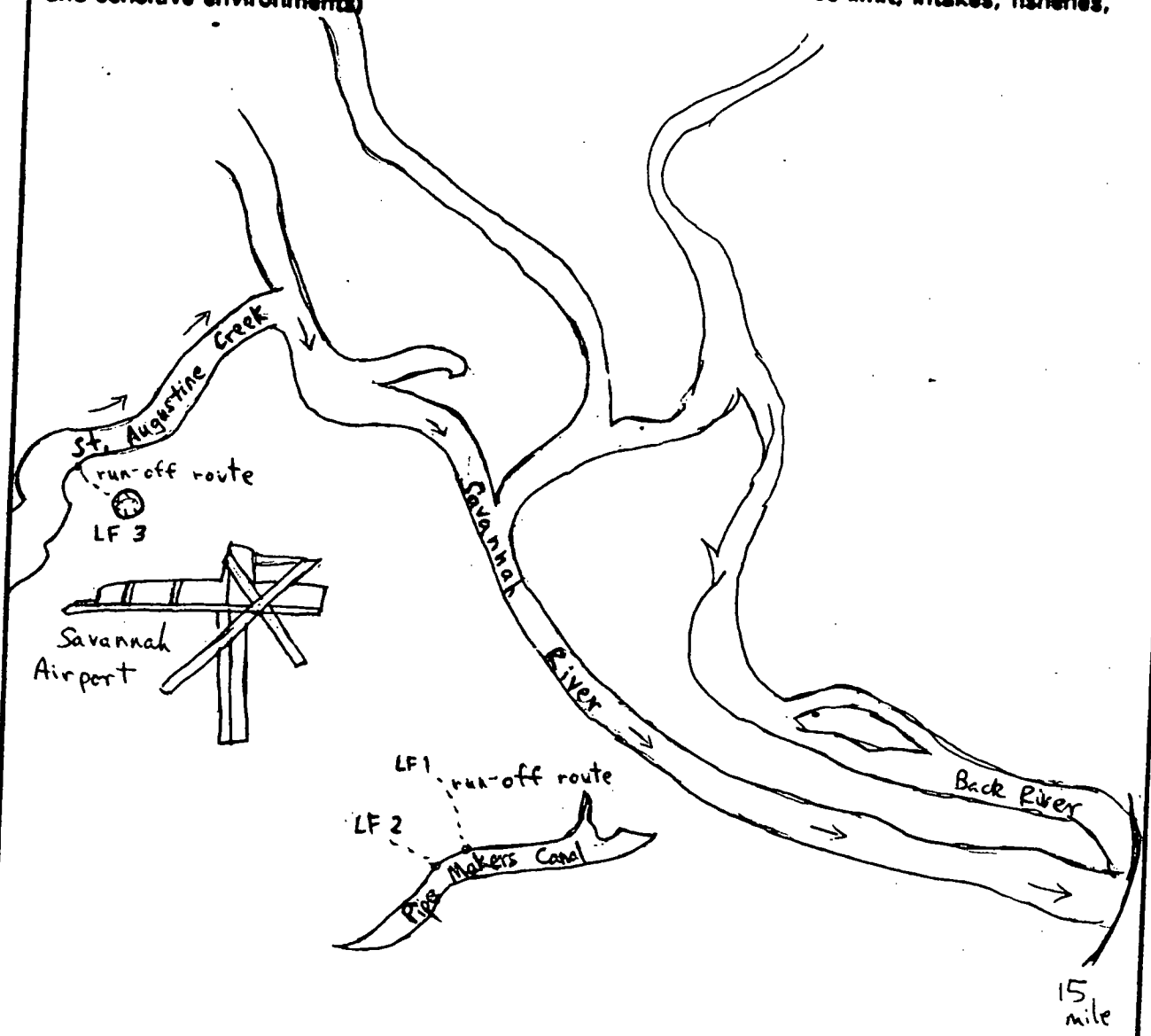
Nearest Well =

Score =

Population information pertains to landfills no. 1 and no. 2

SURFACE WATER PATHWAY
MIGRATION ROUTE SKETCH

Suface Water Migration Route Sketch:
(include runoff route, probable point of entry, 15-mile target distance limit, intakes, fisheries, and sensitive environments)



SURFACE WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☒	☐	☐	Is surface water nearby?
☐	☐	☒	Is waste quantity particularly large?
☒	☐	☐	Is the drainage area large?
☒	☐	☐	Is rainfall heavy?
☐	☒	☐	Is the infiltration rate low?
☒	☐	☐	Are sources poorly contained or prone to runoff or flooding?
☒	☐	☐	Is a runoff route well defined (e.g., ditch or channel leading to surface water)?
☐	☒	☐	Is vegetation stressed along the probable run-off route?
☐	☒	☐	Are sediments or water unnaturally discolored?
☐	☒	☐	Is wildlife unnaturally absent?
☐	☒	☐	Has deposition of waste into surface water been observed?
☒	☐	☐	Is ground water discharge to surface water likely?
☒	☐	☐	Does analytical or circumstantial evidence suggest surface water contamination?
☐	☐		Other criteria? _____
☒	☐		SUSPECTED RELEASE?

PRIMARY TARGETS

Yes	No	Unk	
☒	☐	☐	Is any target nearby? If yes:
			☐ Drinking water intake ☒ Fishery ☒ Sensitive environment
☐	☒	☐	Has any intake, fishery, or recreational area been closed?
☒	☐	☐	Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target?
☒	☐	☐	Does any target warrant sampling? If yes:
			☐ Drinking water intake ☒ Fishery — on-site pond ☐ Sensitive environment
☐	☐		Other criteria? _____
☐	☒		PRIMARY INTAKE(S) IDENTIFIED?
☒	☒		PRIMARY FISHERY(IES) IDENTIFIED?
☒	☐		PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED?

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Analytical evidence of surface water contamination

Summarize the rationale for Primary Targets (attach an additional page if necessary):

on-site pond

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics

Do you suspect a release (see Surface Water Pathway Criteria List, page 11)? Yes X No
Distance to surface water: 150-200 ft
Flood frequency: 100 yrs
What is the downstream distance to the nearest drinking water intake? 8 miles
Nearest fishery? on-site miles Nearest sensitive environment? on-site miles

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550. Use only column A for this pathway.	550		1,3
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, use the table below to assign a score based on distance to surface water and flood frequency. Use only column B for this pathway.			
Distance to surface water ≤ 2,500 feet	500		
Distance to surface water > 2,500 feet, and			
Site in annual or 10-year floodplain	500		
Site in 100-year floodplain	400		
Site in 500-year floodplain	300		
Site outside 500-year floodplain	100		—
LR =	550		

	A	B	Reference
DRINKING WATER THREAT TARGETS			
3. Record the water body type, flow (if applicable), and number of people served by each drinking water intake within the target distance limit. If there is no drinking water intake within the target distance limit, factors 4, 5, and 6 each receive zero scores.			

Intake Name	Water Body Type	Flow	People Served
		cfs	
		cfs	
		cfs	

4. PRIMARY TARGET POPULATION: If you suspect any drinking water intake listed above has been exposed to a hazardous substance from the site (see Surface Water Pathway Criteria List, page 11), list the intake nearest and calculate the factor score based on the total population served.	0		7
0 people ÷ 10 =			7
5. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water intakes that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 3.	0		7
Are any intakes part of a blended system? Yes ___ No ___ If yes, attach a page to show apportionment calculations.			
6. NEAREST INTAKE: If you have identified a primary target population for the drinking water threat (factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking water intake exists within the target distance limit, assign a score of zero.	0		7
7. RESOURCES	5		1,3
T =	5		

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow (see PA Table 4)	Population	Nearest Intake (closest Highest)	Population Served by Intake Within Flow Category: 1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	Population Value
<10 cfs	_____	30	2	5	16	52	163	521	1,633	5,214	16,335	52,136	163,246	_____
10 to 100 cfs	_____	2	1	1	2	5	16	52	163	521	1,633	5,214	16,335	_____
>100 to 1,000 cfs	_____	1	0	0	1	1	2	5	16	52	163	521	1,633	_____
>1,000 to 10,000 cfs	_____	0	0	0	0	0	1	1	2	5	16	52	163	_____
>10,000 cfs or Great Lakes	_____	0	0	0	0	0	0	0	1	1	2	5	16	_____
3-mile Mixing Zone	_____	10	1	3	8	25	82	261	816	2,607	8,162	26,068	81,663	_____

Nearest Intake = ○ Score = ○

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body: Water Body Type	OR	Flow	Dilution Weight
minimal stream		< 10 cfs	1
small to moderate stream		10 to 100 cfs	0.1
moderate to large stream		> 100 to 1,000 cfs	N/A
large stream to river		> 1,000 to 10,000 cfs	N/A
large river		> 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers		10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes		N/A	N/A

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	References
Enter Surface Water Likelihood of Release score from page 12.	LR =	550		

HUMAN FOOD CHAIN THREAT TARGETS

8. Record the water body type and flow (if applicable) for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Fishery Name	Water Body Type	Flow
	on-site pond	– cfs
	St. Augustine Creek	– cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the primary fisheries:
on-site pond

300

1, 3, 17, 18,

1, 2, 3

10. SECONDARY FISHERIES

A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.

B. If you do not suspect a release, assign a Secondary Fisheries score from the table below using the lowest flow at any fishery within the target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

T = 850

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	References
Enter Surface Water Likelihood of Release score from page 12.	LR =	550		

ENVIRONMENTAL THREAT TARGETS

11. Record the water body type and flow (if applicable) for each surface water sensitive environment within the target distance limit (see PA Tables 4 and 5). If there is no sensitive environment within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Environment Name	Water Body Type	Flow
	on-site pond	– cfs
	St. Augustine Creek	– cfs
		cfs
		cfs
		cfs

1, 3, 17, 18

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate factor 13. List the primary sensitive environments:

on-site pond

300

1, 3, 17, 18

13. SECONDARY SENSITIVE ENVIRONMENTS: If sensitive environments are present, but none is a primary sensitive environment, evaluate Secondary Sensitive Environments based on flow.

A. For secondary sensitive environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight (PA Table 4)	Environment Type and Value (PA Tables 5 and 6)	Total
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	

Sum = –

B. If all secondary sensitive environments are located on surface water bodies with flows > 100 cfs, assign a score of 10.

–

T = 850

PA TABLE 5: SURFACE WATER AND AIR PATHWAY SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	*Assigned Value*
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (wilderness in lakes or entire small lakes)	
National Monument (air pathway only)	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized for breeding by large or dense aggregations of vertebrate animals (air pathway) or semi-aquatic foragers (surface water pathway)	
National river reach designated as Recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER PATHWAY WETLANDS FRONTAGE VALUES

Total Length of Wetlands	*Assigned Value*
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	A Suspected Release	B No Suspected Release
14. A. If you have identified any primary target for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	32	
B. If you have NOT identified any primary target for surface water, assign the waste characteristics score calculated on page 4.	—	
WC =	32	

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score (from page 12)	Targets (T) Score (pages 12, 14, 15)	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score LR x T x WC / 82,500
Drinking Water	550	5	32	2
Human Food Chain	550	300	32	64
Environmental	550	300	32	60

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

100

SOIL EXPOSURE PATHWAY CRITERIA LIST

SUSPECTED CONTAMINATION	RESIDENT POPULATION			
	Yes	No	Unk	
Surficial contamination can generally be assumed.	☐	☒	☐	Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination?
	☐	☒	☐	Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator?
	☒	☒	☐	Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities?
	☐	☐	☒	Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems?
	☐	☒	☐	Does any neighboring property warrant sampling?
	☐	☐		Other criteria? _____
	☐	☐		RESIDENT POPULATION IDENTIFIED?

Summarize the rationale for Resident Population (attach an additional page if necessary):

Residents were not identified within 200 feet of the three landfills.

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics		
Do any people live on or within 200 ft of areas of suspected contamination?	Yes ___	No X
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination?	Yes ___	No X
Is the facility active? Yes ___ No ___ If yes, estimate the number of workers: ___		

LIKELIHOOD OF EXPOSURE	Suspected Contamination Score	Reference
1. SUSPECTED CONTAMINATION: Surficial contamination can generally be assumed, and a score of 550 assigned. Assign zero only if the absence of surficial contamination can be confidently demonstrated. LE =	550	1,3
RESIDENT POPULATION THREAT TARGETS		
2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or daycare on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). 0 people x 10 =	0	2,10
3. RESIDENT INDIVIDUAL: If you have identified a resident population (factor 2), assign a score of 50; otherwise, assign a score of 0.	0	2,10
4. WORKERS: Use the following table to assign a score based on the total number of workers at the facility and nearby facilities with suspected contamination:	0	2,10

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Use PA Table 7 to assign a value for each terrestrial sensitive environment on an area of suspected contamination:	75	21,22

Terrestrial Sensitive Environment Type	Value
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species	75

Sum =

6. RESOURCES	5	1,3
T =	80	

WASTE CHARACTERISTICS		
7. Assign the waste characteristics score calculated on page 4. WC =	18	

RESIDENT POPULATION THREAT SCORE: $\frac{LE \times T \times WC}{82,500}$ = 10

NEARBY POPULATION THREAT SCORE: 7 — 10

SOIL EXPOSURE PATHWAY SCORE:
Resident Population Threat + Nearby Population Threat = 11

PA TABLE 7: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	*Assigned Value*
Terrestrial critical habitat for Federally designated endangered or threatened species	100
National Park	
Designated Federal Wilderness Area	
National Monument	
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species	75
National Preserve (terrestrial)	
National or State terrestrial Wildlife Refuge	
Federal land designated for protection of natural ecosystems	
Administratively proposed Federal Wilderness Area	
Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	
Terrestrial habitat used by State designated endangered or threatened species	50
Terrestrial habitat used by species under review for Federal designated endangered or threatened status	
State lands designated for wildlife or game management	25
State designated Natural Areas	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	

AIR PATHWAY CRITERIA LIST

SUSPECTED RELEASE				PRIMARY TARGETS
Yes	No	Unk		
☐	☒	☐	Are odors currently reported?	If you suspect a release to air, evaluate all populations and sensitive environments within 1/4 mile (including those onsite) as primary targets.
☐	☒	☐	Has release of a hazardous substance to the air been directly observed?	
☐	☒	☐	Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?	
☐	☒	☐	Does analytical or circumstantial evidence suggest a release to the air?	
☐	☒		Other criteria? _____	
☐	☒		SUSPECTED RELEASE?	

Summarize the rationale for Suspected Release (attach an additional page if necessary):

AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 211)?	Yes ___ No X
Distance to the nearest individual:	___ ft

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 211), assign a score of 550. Use only column A for this pathway.	—		
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500. Use only column B for this pathway.		500	1,2,3
LR =		500	
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a suspected release of hazardous substances to the air. 0 people x 10 =	0		10
4. SECONDARY TARGET POPULATION: Determine the number of people not suspected to be exposed to a release to air, and assign the total population score using PA Table 8.		7	10
5. NEAREST INDIVIDUAL: If you have identified any Primary Target Population for the air pathway, assign a score of 50; otherwise, assign the Nearest Individual score from PA Table 8.		2	10
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 9) and wetland acreage values (PA Table 9) for environments subject to exposure from a suspected release to the air.			
Sum =			—
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		13	17,18,21,22
8. RESOURCES		5	1,3
T =		27	
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4.		18	
WC =		18	

AIR PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ = 3

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual Adjusted	Population Within Distance Category: 1 to 10	11 to 20	21 to 100	101 to 200	201 to 1,000	1,001 to 2,000	2,001 to 10,000	10,001 to 20,000	20,001 to 100,000	100,001 to 200,000	200,001 to 1,000,000	Greater than 1,000,000	Population Value
Onsite	____	20	1	2	5	10	52	103	521	1,033	5,214	10,328	52,136	103,240	____
>0 to ½ mile	____	20	1	1	1	4	13	41	130	408	1,300	4,081	13,004	40,811	____
>½ to ¼ mile	55	2	0	0	1	1	3	9	28	88	282	882	2,816	8,816	1
>¼ to 1 mile	604	1	0	0	0	1	1	3	8	26	83	261	834	2,612	1
>1 to 2 miles	3249	0	0	0	0	0	1	1	3	8	27	83	266	833	3
>2 to 3 miles	8815	0	0	0	0	0	1	1	1	4	12	38	120	376	1
>3 to 4 miles	5243	0	0	0	0	0	0	1	1	2	7	23	73	229	1

Nearest Individual = 2

Score = 7

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 6 or 9)		Product
Onsite	0.10	75	Terr. habitat/Fed. endangered species	7.5
		25	wetlands	2.5
0-1/4 mi	0.025	75	Terr. habitat/Fed. endangered species	1.875
		25	wetlands	0.625
1/4-1/2mi	0.0054	75	Terr. habitat/Fed. endangered species	0.405
		25	wetlands	0.135

Total Environments Score = 13

Landfill no. 3 evaluated for secondary sensitive environments

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	30	900
SURFACE WATER PATHWAY SCORE (S_{sw}):	100	10,000
SOIL EXPOSURE PATHWAY SCORE (S_s):	11	121
AIR PATHWAY SCORE (S_a):	3	9
SITE SCORE: $\sqrt{\frac{S_{gw}^2+S_{sw}^2+S_s^2+S_a^2}{4}}$		53

SUMMARY

	YES	NO
1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water?	☐	☑
A. If yes, identify the well(s).		
B. If yes, how many people are served by the threatened well(s)?		
2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water?		
A. Drinking water intake	☐	☑
B. Fishery	☑	☐
C. Sensitive environment (wetland, critical habitat, others)	☑	☐
D. If yes, identify the target(s). Terr. habitat/Fed. endangered species wetlands		
3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility?	☐	☑
If yes, identify the property(ies) and estimate the associated population(s).		
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain:	☐	☑

U.S. EPA REGION IV

SDMS

Unscannable Material Target Sheet

DocID: 10730240 Site ID: GAD984307918

Site Name: Fry-Traxis

Nature of Material:

Map:	☒	Computer Disks:	☐
Photos:	☐	CD-ROM:	☐
Blueprints:	☐	Oversized Report:	☐
Slides:	☐	Log Book:	☐

Other (describe): Radius Map

Amount of material:

* Please contact the appropriate Records Center to view the material *