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April 21, 2000

Unites States Army Corps of Engineers
Fort Norfolk
803 Front Street
Norfolk, Virginia 23510-1096

Attn: Ms. Nancy Bland

Re: Contract N62470-95-D-6007
Navy CLEAN II Program
Contract Task Order (CTO) 0104
Site 1 – Landfill Near Incinerator
Wetland Verification
Naval Weapons Station Yorktown
Yorktown, Virginia
Cheatham Annex Site

Dear Ms. Bland:

As per our wetland verification field meeting on March 27, 2000, for the referenced project, Baker Environmental, Inc. (Baker) identified and conducted an inventory of wetland resources in the vicinity of Site 1 which is located along the York River behind the former location of the old incinerator and associated landfill.

The wetland field reconnaissance identified and delineated a total of one estuarine intertidal persistent emergent wetland totaling approximately 1.25 acres (~54,260 square feet) within the project area. The estuarine intertidal persistent emergent wetland (E2EM1P) is comprised of three hydrophytic vegetation cover types: herbaceous, scrub/shrub, and a mixture of scrub/shrub and forested species. The herbaceous vegetation species constitute approximately 57% of the dominant wetland acreage with scrub/shrub and scrub/shrub-forested species accounting for the remaining 32% and 11% of the wetland vegetative cover types, respectively.

Enclosed for your records are the Routine Wetland Determination data sheets along with a copy of the site map (Figure 1) including wetland boundaries, flag points and the wetland/upland data points. As discussed in our field visit, we request your written concurrence on this delineation. If you have any questions concerning the enclosed information, please feel free to call me at (757) 631-5418 or the Project Manager, Mr. Martin Taube, at (412) 269-4687.

Sincerely,

for Claudette L. Jenkins, Ph.D.
Senior Environmental Scientist

cc: Ms. Ollie Glodis, LANTDIV, Code 02116 (letter only)
Mr. Robert Schirmer, LANTDIV, Code 18222
Mr. Steven Hubner, LANTDIV, Code 02031

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cheatham Annex Site 1				Date: 3-15-2000	
Applicant/Owner: Naval Weapons Station Yorktown				County: York	
Investigator(s): C. Jenkins & P. Henderson				State: Virginia	
Do normal circumstances exist on the site?	YES		NO X	Community ID: MB-1	
Is the site significantly disturbed?	YES	X	NO	Transect ID: Herbaceous	
Is the area a potential problem area?	YES	X	NO	Plot ID: Data Point A	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Phragmites australis*	H	FACW	9.		
2. *Taxodium distichum*	S/S	OBL	10.		
3 *Myrica cerifera*	S/S	FAC	11.		
4. *Lonicera japonica*	V	FAC-	12.		
5. *Limonium carolinianum*	H	OBL	13.		
6. *Polygonum amphibium*	H	OBL	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 83.3%

Remarks: Approximately 85% of vegetation are one species (*Phragmites australis).* Hydrophytic vegetation identified.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream Lake or Tide Gauge
- ___ Aerial Photographs
- X Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 Inches

Depth to Free Water in Pit: 0 Inches

Depth to Saturated Soil: ? Inches

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 In.
- ___ Water-Stained Leaves
- ___ Local Soil Survey
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Wetland area is adjacent to the York River and has a small intermittent stream bisecting the area. National Wetland Inventory and USGS Quad sheets were used as references.

SOILS

Map Unit Name
(Series and Phase): Unknown

Drainage Class: na

Field Observations

Taxonomy (Subgroup): Unknown

Confirm Mapped Type? YES ___ NO ___

Profile Description:

Depth (inches)	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18	A	10YR2/1	na	na	Silty sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
_X_ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer (Sandy
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Soils are very mucky. Hydric soils present.
Unable to determine Soils Map Unit Series, Phase, and Taxonomy information because this area is not included in the Soil Survey for James City and York Counties and the City of Williamsburg, Virginia.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES _X_ NO ___
Wetland Hydrology Present? YES _X_ NO ___
Hydric Soils Present? YES _X_ NO ___

Is this Sampling Point a Wetland? YES _X_ NO ___

Remarks: All wetland parameters are satisfied according to the 1987 United States Army Corps of Engineers Wetland Delineation Manual.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cheatham Annex Site 1	Date: 3-15-2000
Applicant/Owner: Naval Weapons Station Yorktown	County: York
Investigator(s): C. Jenkins & P. Henderson	State: Virginia
Do normal circumstances exist on the site? YES X NO ___	Community ID: MB-1
Is the site significantly disturbed? YES ___ NO X	Transect ID: Scrub/shrub
Is the area a potential problem area? YES ___ NO X	Plot ID: Data Point B

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Taxodium distichum*	S/S	OBL	9.		
2. *Myrica cerifera*	S/S	FAC	10.		
3 *Lonicera japonica*	V	FAC-	11.		
4. *Plantans occidentalis*	T	FACW-	12.		
5. *Senecio glabellus*	H	FACW+	13.		
6. *Equisetum fluviatile*	H	OBL	14.		
7. *Lindera benzoin*	S/S	FACW-	15.		
8. *Eriophorum angustifolim*	H	OBL	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 87.5%

Remarks: Dominantly scrub/shrub vegetation with understory herbaceous species.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream Lake or Tide Gauge
- ___ Aerial Photographs
- X Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 Inches

Depth to Free Water in Pit: 0 Inches

Depth to Saturated Soil: 0 Inches

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 In.
- X Water-Stained Leaves
- ___ Local Soil Survey
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Wetland area is adjacent to the York River and has a small intermittent stream bisecting the area. National Wetland Inventory and USGS Quad sheets were used as references.

SOILS

Map Unit Name
(Series and Phase): Unknown
Drainage Class: na
Taxonomy
(Subgroup): Unknown
Field Observations
Confirm Mapped YES ___ NO ___

Profile Description:

Depth	Horizon	Matrix Color	Mottle Colors	Mottle	Texture, Concretions, Structure, etc.
0-18	A	10YR3/1	na	na	Silty loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
_X_ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer (Sandy
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Fiddler crab found in the soil profile. Hydric soils confirmed.
Unable to determine Soils Map Unit Series, Phase, and Taxonomy information because this area is not included in the Soil Survey for James City and York Counties and the City of Williamsburg, Virginia.

WETLAND DETERMINATION

Hydrophytic Vegetation YES _X_ NO ___
Wetland Hydrology Present? YES _X_ NO ___
Hydric Soils Present? YES _X_ NO ___
Is this Sampling Point a YES _X_ NO ___

Remarks: All wetland parameters are satisfied according to the 1987 United States Army Corps of Engineers Wetland Delineation Manual.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual).

Project/Site: Cheatham Annex Site 1	Date: 3-15-2000
Applicant/Owner: Naval Weapons Station Yorktown	County: York
Investigator(s): C. Jenkins & P. Henderson	State: Virginia
Do normal circumstances exist on the site? YES X NO ___	Community ID: MB-1 Scrub/shrub
Is the site significantly disturbed? YES ___ NO X	Transect ID: - Forested
Is the area a potential problem area? YES ___ NO X	Plot ID: Data Point C

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Plantanus occidentalis*	T	FACW-	9.		
2. *Populus heterophylla*	T	FACW+	10.		
3 *Myrica cerifera*	S/S	FAC	11.		
4. *Lonicera japonica*	V	FAC-	12.		
5. *Senecio glabellus*	H	FACW+	13.		
6. *Lindera benzoin*	S/S	FACW-	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 83.3%

Remarks: Confirmation of hydrophytic vegetation.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream Lake or Tide Gauge
- ___ Aerial Photographs
- X Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 Inches

Depth to Free Water in Pit: 0 Inches

Depth to Saturated Soil: 0 Inches

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 In.
- X Water-Stained Leaves
- ___ Local Soil Survey
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Hydrologic indicators are present.
National Wetland Inventory and USGS Quad sheets were used as references.

SOILS

Map Unit Name
(Series and Phase): Unknown

Drainage Class: na

Field Observations
Taxonomy (Subgroup): Unknown

Confirm Mapped Type? YES ___ NO ___

Profile Description:

Depth (inches)	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	A	10YR4/1	na	na	Silty sandy loam
1-18	B	10YR3/1	na	na	Silty sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer (Sandy
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Hydric soils confirmed.
Unable to determine Soils Map Unit Series, Phase, and Taxonomy information because this area is not included in the Soil Survey for James City and York Counties and the City of Williamsburg, Virginia.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES _X_ NO ___
Wetland Hydrology Present? YES _X_ NO ___
Hydric Soils Present? YES _X_ NO ___

Is this Sampling Point a Wetland? YES _X_ NO ___

Remarks: All wetland parameters are satisfied according to the 1987 United States Army Corps of Engineers Wetland Delineation Manual.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cheatham Annex Site 1	Date: 3-15-2000
Applicant/Owner: Naval Weapons Station Yorktown	County: York
Investigator(s): C. Jenkins & P. Henderson	State: Virginia
Do normal circumstances exist on the site? YES X NO ___	Community ID: MB-1
Is the site significantly disturbed? YES ___ NO X	Transect ID: Upland
Is the area a potential problem area? YES ___ NO X	Plot ID: Data Point D

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Smilax rotundifolia*	V	FAC	9. *Cardemine parviflora*	H	FACU
2. *Liquidambar styraciflua*	T	FAC	10.		
3 *Galax rotundifolia*	H	NI	11.		
4. *Juglans nigra*	T	FACU	12.		
5. *Various Grass spp.*	H	NI	13.		
6. *Fagus grandifolia*	T	FACU	14.		
7. *Lonicera japonica*	V	FAC-	15.		
8. *Plantago major*	H	FACU	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 22.2%

Remarks: Lack of hydrophytic vegetation.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream Lake or Tide Gauge
- ___ Aerial Photographs
- X Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: >18 Inches

Depth to Free Water in Pit: >18 Inches

Depth to Saturated Soil: >18 Inches

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ___ Oxidized Root Channels in Upper 12 In.
- ___ Water-Stained Leaves
- ___ Local Soil Survey
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No hydrologic indicators.
National Wetland Inventory and USGS Quad sheets were used as references.

SOILS

Map Unit Name
(Series and Phase): Unknown

Drainage Class: na

Field Observations

Taxonomy (Subgroup): Unknown

Confirm Mapped Type? YES ____ NO ____

Profile Description:

Depth (inches)	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	10YR4/4	na	na	Sandy loam
6-18	B	10YR5/6	na	na	Clayey sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer (Sandy
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Lack of hydric soils.
Unable to determine Soils Map Unit Series, Phase, and Taxonomy information because this area is not included in the Soil Survey for James City and York Counties and the City of Williamsburg, Virginia.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES ___ NO X
Wetland Hydrology Present? YES ___ NO X
Hydric Soils Present? YES ___ NO X

Is this Sampling Point a Wetland? YES ___ NO X

Remarks: No wetland parameters have been satisfied according to the 1987 United States Army Corps of Engineers Wetland Delineation Manual.

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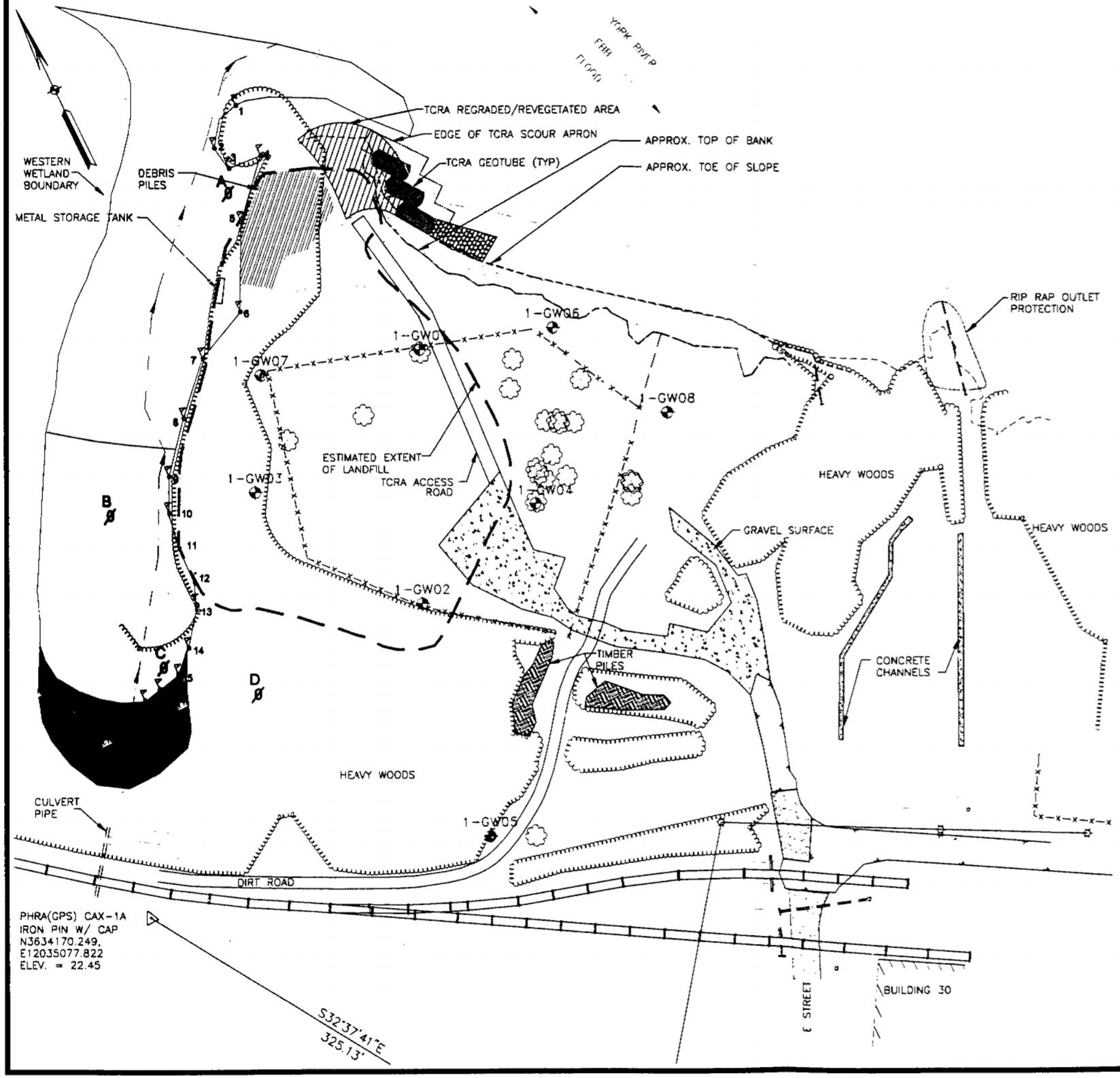

LEGEND

HERBACEOUS	0.71 Acres
SCRUB/SHRUB	0.40 Acres
SCRUB/SHRUB FORESTED	0.14 Acres
EXISTING MONITORING WELL	
STORM DRAIN MANHOLE	
STORM DRAIN INLET (DI)	
GROUND SURFACE ELEVATION CONTOURS (NAVD 88)	
WETLAND FLAG	(PINK FLAGGING)
WETLANDS	
8-FOOT CHAIN LINK FENCE	x — x — x
TREE LINE	
TREES/SHRUBS	
ELECTRIC POLES/LINES	
RAILROAD TRACKS	
GPS CONTROL STATION	
STREAM ℄ WITH (EBB) FLOW DIRECTION	
DATA POINT	
ESTIMATED LANDFILL EXTENT	

80 0 40 80
1 inch = 80 ft.

Baker
Baker Environmental, Inc.

FIGURE 1
SITE PLAN - SITE 1
CTO - 0104

NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA
CHEATHAM ANNEX SITE