



DEPARTMENT OF DEFENSE
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
ATILLES OFFICE
400 FERNANDEZ JUNCOS AVENUE
SAN JUAN, PUERTO RICO 00901-3299

general company

Antilles Regulatory Section

November 19, 2010

PUBLIC NOTICE

Permit Application No. SAJ- 2010-02881 (IP-EWG)

TO WHOM IT MAY CONCERN: This district has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403) as described below:

APPLICANT: Eng. Francisco E. Lopez
Autoridad de Energía Eléctrica
P.O. Box 364267
San Juan 00936-4267

WATERWAY & LOCATION: The Vía Verde natural gas pipe line project will pass through the municipalities of Peñuelas, Adjuntas, Utuado, Arecibo, Barceloneta, Manati, Vega Alta, Vega Baja, Dorado, Toa Baja, Cataño, Bayamón, and Guaynabo, Puerto Rico.

LATITUDE & LONGITUDE: Latitude 18°27'24.17" North, Longitude 66°40'15.93" West

PROJECT PURPOSE:

Basic: Natural gas utility line

Overall: Deliver an alternate fuel source to three existing electric power generating facilities located in Peñuelas, Arecibo, and Toa Baja operated by the Puerto Rico Energy and Power Authority (PREPA).

PROPOSED WORK: The applicant proposes to construct and install a 24-inch diameter steel natural gas (NG) pipeline approximately 92 miles long with a construction right-of way (ROW) of 150 feet wide, that traverses the island of Puerto Rico from the EcoEléctrica Liquid Natural Gas Terminal in the municipality of Peñuelas, to the Cambalache Thermoelectric Power Plant in the municipality of Arecibo, then east to the Palo Seco power plant facility in the municipalities of Toa Baja and San Juan. The total project area is about 1,672 acres and the pipeline will traverse 235 rivers and wetlands, covering 369 acres of jurisdictional Waters of the United States.

Avoidance and Minimization Information: The applicant has provided the following statement:

The applicant evaluated alternative methods to provide natural gas to the power stations. These options included building a terminal to receive liquid natural gas directly from tanker ships at, or near, the power plants; building storage and re-gasification facilities on the north coast with pipelines to the power plants; and evaluating several different overland routes for a pipeline to deliver natural gas from the existing facility near Peñuelas to the power plants. Public interest and environmental factors were used to identify positive and negative actions with all of these alternatives. The applicant submits the proposed pipeline and the proposed route appear to be the most practical alternative with the least adverse impact to the environment and public safety/interest when considering all factors.

Compensatory Mitigation: The applicant has provided the following statement:

The applicant will incur the costs of horizontal directional drilling (HDD) under all medium to large water bodies, i.e. any rivers and embayments, to avoid a discharge of dredged or fill material into waters of the U.S. Furthermore, the applicant has designed the construction of the pipeline to incorporate the use of vertical wall trenching whenever possible during placement of the pipe, to minimize the width of excavation and impacts in wetlands. If vertical trenching construction method is not practicable, standard ditch excavation with sloped walls will be utilized. Regardless of the method used, the project has been designed to avoid permanent impact and all wetland impacts will be temporary in nature. All excess fill or dredged material will be removed and preconstruction wetland elevations will be reestablished. Wetland organic topsoil will be separated during trench excavation and stockpiled in a separate area. This material will be re-used so that the top 6- inches of wetlands restored after the pipe is placed will be 100% organic material. All stream embankments where trenching occurs will be restored and covered with matting to prevent erosion until local wetland plant communities are reestablished. Clearing activities in waters of the U.S. will not incorporate mechanized equipment and mats will be used wherever possible to avoid the need for temporary fill. In situations where temporary roads are needed to construct HDD work pads in wetland areas, these roads and the work pads will be immediately removed after the HDD operation is completed at each crossing. Wetland conditions will be immediately reestablished at each crossing as the project moves forward. If it is determined that some type of additional compensatory mitigation is required to offset the minimal temporal impacts that will occur as the pipeline is constructed, the applicant is prepared to identify upland areas along the edges of existing wetland sites that will be crossed where the uplands can be lowered in elevation (scraped down) and additional herbaceous wetland habitat can be established on an agreed upon acreage ratio. Given the temporary nature of impacts expected to occur from construction, the applicant expects any such mitigation required by the U.S. Army Corps of Engineers

(Corps) to be at or below 0.01 acres of compensatory mitigation per 1 acre of temporary wetland impacts.

EXISTING CONDITIONS: The pipeline route will encompass both private and public lands which include commercial, industrial, and agricultural land. In its route, the pipeline will pass along populated urban areas, roads, and highways. Within the north (San Juan to Arecibo) segment of the Project route, the majority of the areas are herbaceous wetlands, rivers, creeks and channel crossings. North to south segment of the project (Arecibo to Peñuelas) includes mostly rivers, creeks and channel crossings. The wetland systems consist of Palustrine Herbaceous Wetlands dominated by herbaceous species, Estuarine Forested Wetland mainly dominated by mangrove trees, Estuarine Forested Canal mostly black mangroves (*Avicennia germinans*), and Estuarine Salt Flat dominated by dwarf black mangrove trees.

ENDANGERED SPECIES: The Corps has determined the proposal may affect 32 listed species, including the endangered Puerto Rican *Nightjar* (*Caprimulgus noctitherus*); the endangered Puerto Rican parrot (*Amazona vittata*), the threatened Puerto Rican crested toad (*Peltophryne lemur*), Puerto Rican boa (*Epicrates inornatus*), Puerto Rican sharp-shinned hawk (*Accipiter striatus venator*), Puerto Rican broad-winged hawk (*Buteo platypterus brunnescens*), and Puerto Rican plain pigeon (*Patagioenas inornata wetmorei*); and the listed plant species *Auerodendron pauciflorum*, palo de Ramon (*Banara vanderbiltii*), diablito de tres cuernos (*Buxus vahli*), *Cordia bellonis*, *Daphnopsis helleriana*, palo de rosa (*Ottoschulzia rhodoxylon*), *Myrcia pagani*, chupacallos (*Pleodendron macranthum*), *Schoepfia arenaria*, erubia (*Solanum drymophilum*), *Tectaria estremarana*, *Thelypteris verecunda*, *Thelypteris yaucoensis*, *Thelypteris inabonensis*, *Chamaecrista glandulosa*, Cobana negra (*Stahlia monosperma*), *Polystichum calderoense*, nogal (*Juglans jamaicensis*), *mitracarpus polycladus*, *mitracarpus maxwelliae*, *Cordia rupicola*, *Catesbaea melanocarpa*, *Eugenia woodburyana*, Bariaco (*Trichillia triacantha*), and St. Thomas prickly ash (*Zanthoxylum thomasianum*) or its designated critical habitat. The Corps will request initiation of formal consultation with the Fish and Wildlife Service/National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act.

ESSENTIAL FISH HABITAT (EFH): This notice initiates consultation with the National Marine Fisheries Service on EFH as required by the Magnuson-Stevens Fishery Conservation and Management Act of 1996. The proposal would impact approximately 28.5 acres of Estuarine Forested Wetland and Canals utilized by various life stages of Jewfish (*Epinephelus itajara*), Nassau Grouper (*E. striatus*), Red Hind (*E. guttatus*), Yellowtail Snapper (*Ocyurus chrysurus*), Mutton Snapper (*Lutjanus analis*), *Chaetodon striatus*, *C. capistratus*, *C. ocellatus*, *C. aculeatus*, Spiny Lobster, Queen Conch, and Corals. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or Federally managed fisheries in the Tallaboa Bay, Arecibo Bay, and Ensenada de Boca Vieja Bay. Our final determination relative to project impacts and

the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

CULTURAL RESOURCES: Information provided by the proponent shows cultural or historic resources along the proposed construction right of way of the project. Pursuant to 33 CFR 325, Appendix C, 3.a and 7.b and in accordance with 36 CFR 800.4(a), the Corps hereby requests information to determine potential effects.

NOTE:

- (1) This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulations governing the regulatory program.
- (2) The jurisdictional line has not been verified by Corps personnel. ?
- (3) The proponent submitted the permit application for approval under the Nationwide Permit Program. However the Corps exerted discretionary authority to allow review as a standard permit and solicit public input.
- (4) More detail plans and drawings are available for viewing at the following web site:

<http://www.saj.usace.army.mil/Divisions/Regulatory/interest.htm>

In addition this same information is available for viewing at our office located at the address on this letterhead.

AUTHORIZATION FROM OTHER AGENCIES: Water Quality Certification will be required from the Puerto Rico Environmental Quality Board and a Certificate of Consistency with the Puerto Rico Coastal Zone Management from the Puerto Rico Planning Board will be required.

Comments regarding the application should be submitted in writing to the District Engineer at the above address within 30 days from the date of this notice.

If you have any questions concerning this application, you may contact Edgar W. Garcia at the letterhead address, by electronic mail at edgar.w.garcia@usace.army.mil, by fax at 787-729-6905, or by telephone at 787-729-6905.

The decision whether to issue or deny this permit application will be based on the information received from this public notice and the evaluation of the probable impact to the associated wetlands. This is based on an analysis of the applicant's avoidance and minimization efforts for the project, as well as the compensatory mitigation proposed.

IMPACT ON NATURAL RESOURCES: Preliminary review of this application indicates that an Environmental Impact Statement will not be required. Coordination with U.S. Fish and Wildlife Service, Environmental Protection Agency (EPA), the National Marine Fisheries Services, and other Federal, State, and local agencies, environmental groups, and concerned citizens generally yields pertinent environmental information that is instrumental in determining the impact the proposed action will have on the natural resources of the area. By means of this notice, we are soliciting comments on the potential effects of the project on threatened or endangered species or their habitat

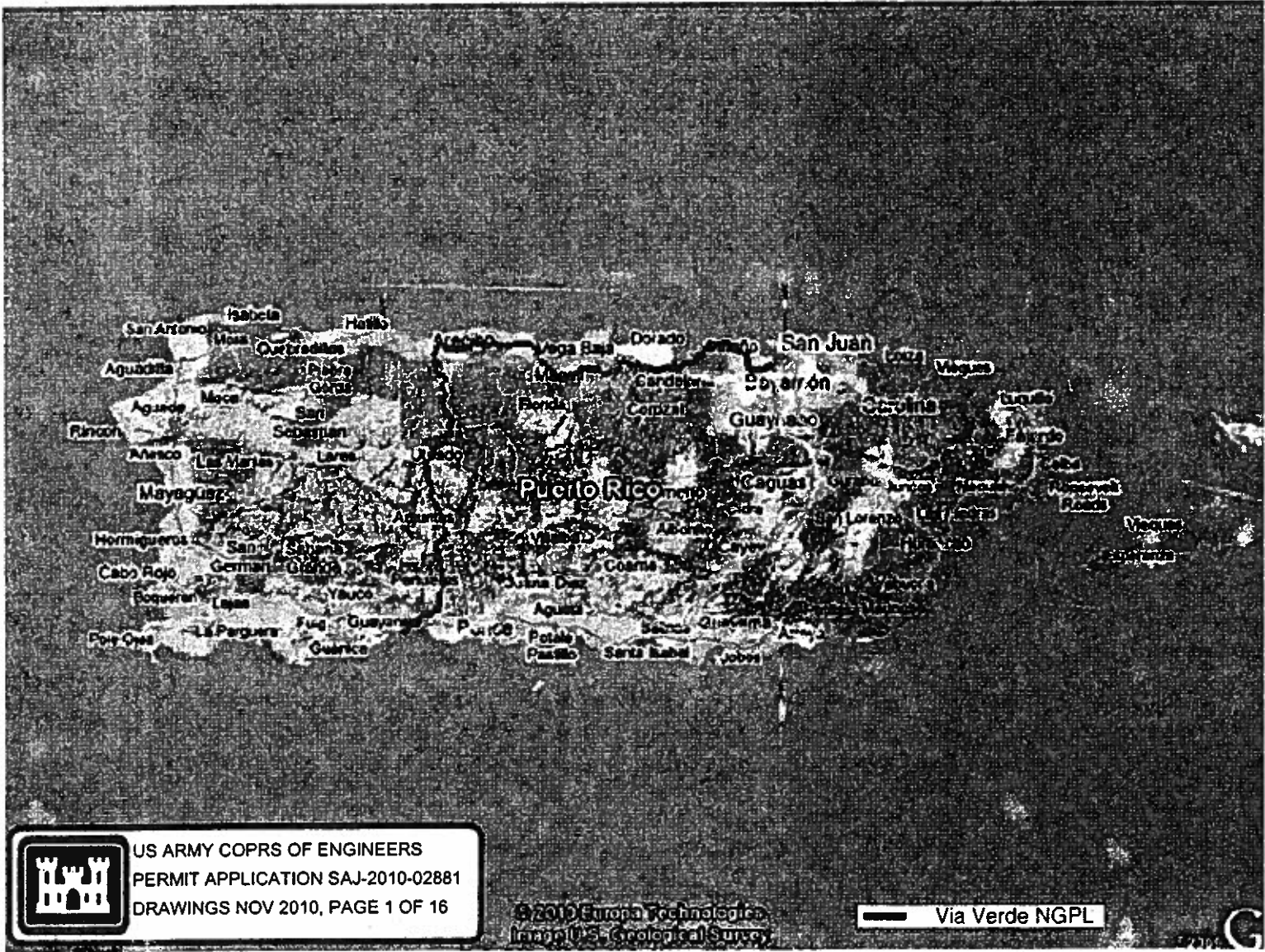
EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among these are conservation, economics, esthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food, and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act of the criteria established under authority of Section 102(a) of the Marine Protection Research and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest. The US Army Corps of Engineers (Corps) is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other Interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

COASTAL ZONE MANAGEMENT CONSISTENCY: In Florida, the State approval constitutes compliance with the approved Coastal Zone Management Plan. In Puerto Rico, a Coastal Zone Management Consistency Concurrence is required from the Puerto Rico Planning Board, In the Virgin Islands, the Department of Planning and Natural Resources permit constitutes compliance with the Coastal Zone Management Plan.

REQUEST FOR PUBLIC HEARING: Any person may request a public hearing. The request must be submitted in writing to the District Engineer within the designated comment period of the notice and must state the specific reasons for requesting the public hearing.

D. W. Kivard

Handwritten notes in the left margin:
- A line with an arrow pointing to the underlined sentence in the first paragraph.
- "Determine if..."
- "now can..."
- "..."
- "..."
- "..."




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 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 1 OF 16

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 from U.S. Geological Survey

— Via Verde NGPL




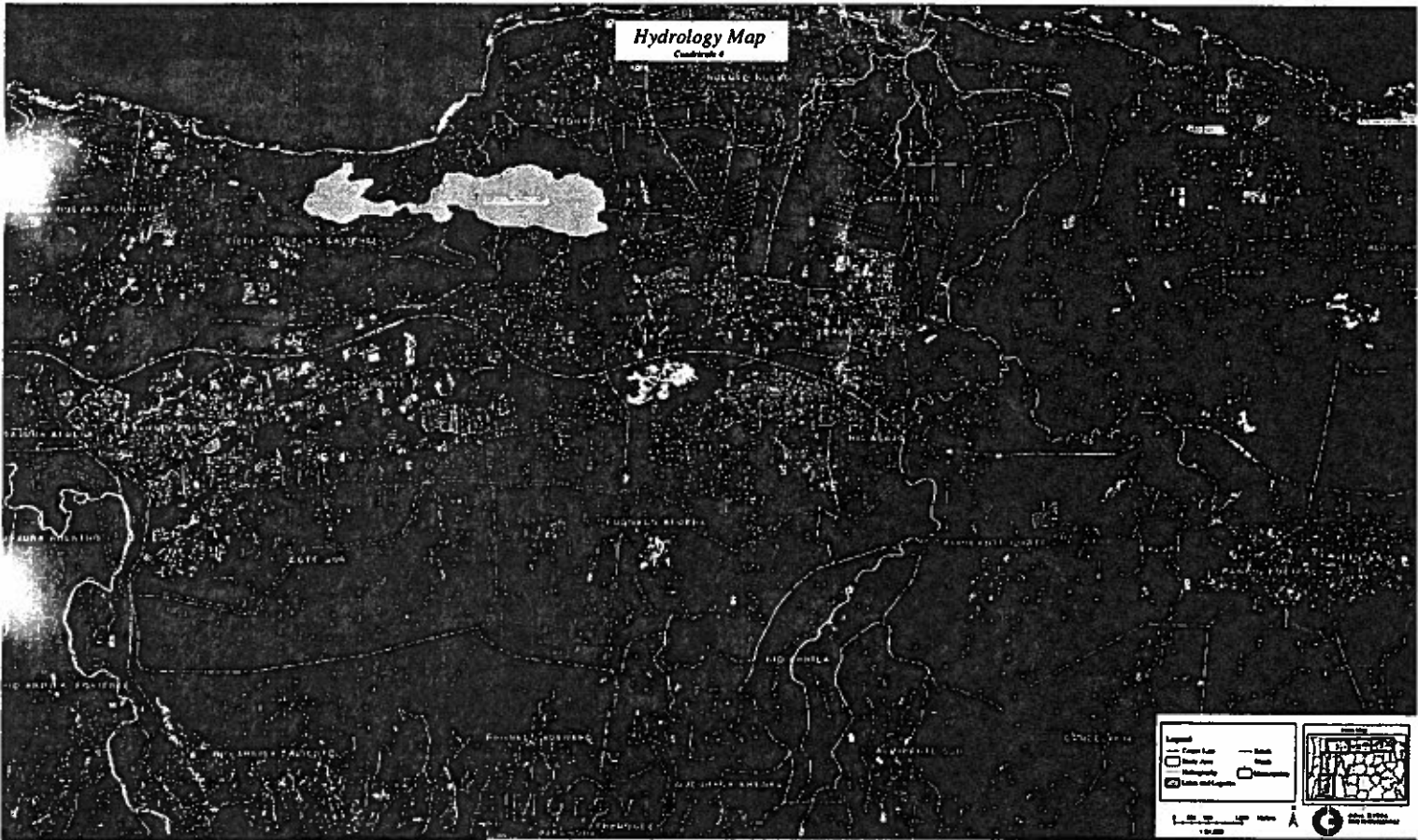




US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 2 OF 16

Hydrology Map
Cumberland 2



 **US ARMY CORPS OF ENGINEERS**
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 3 OF 16

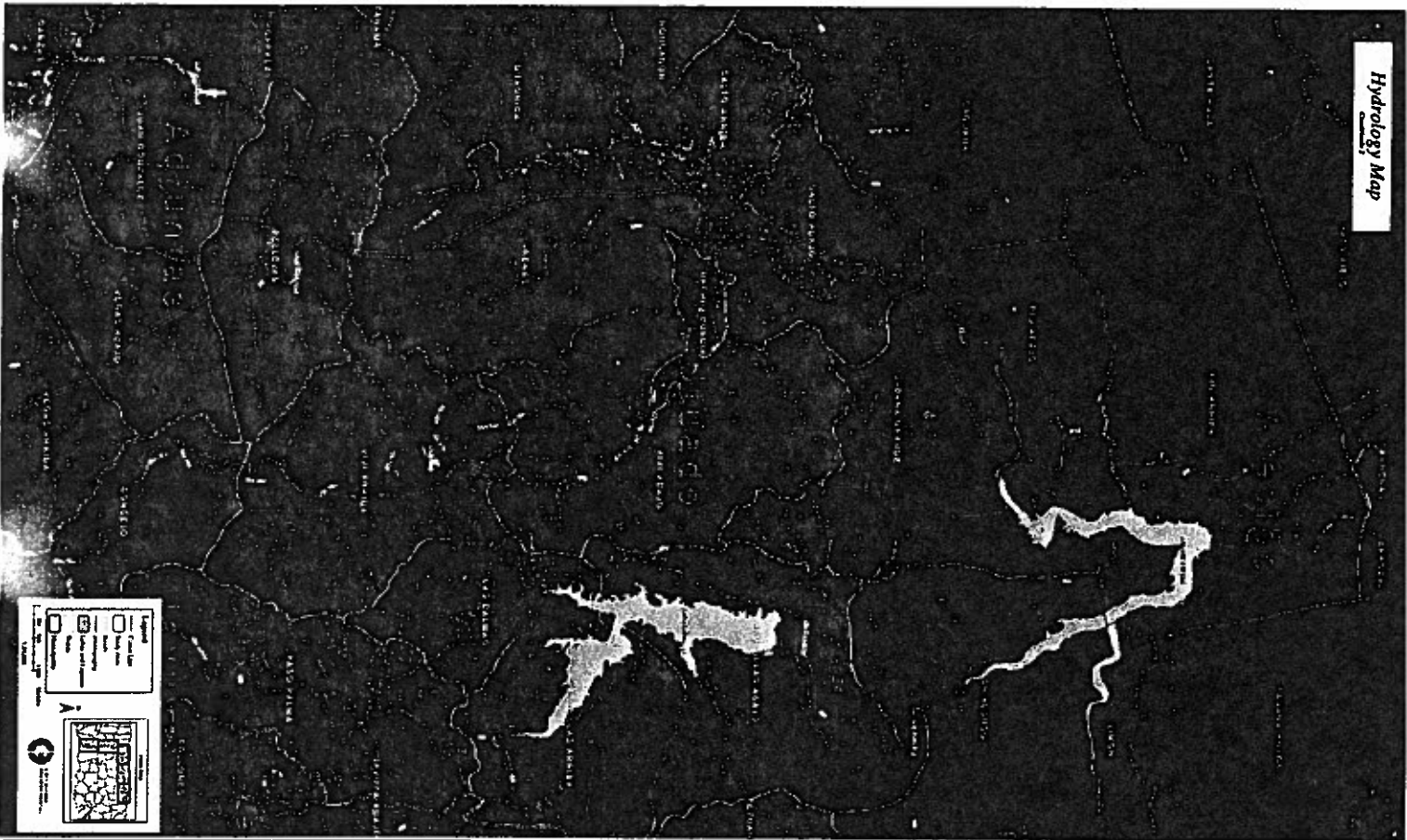



 US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 4 OF 16

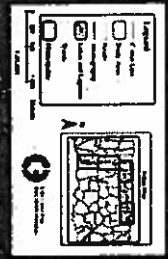
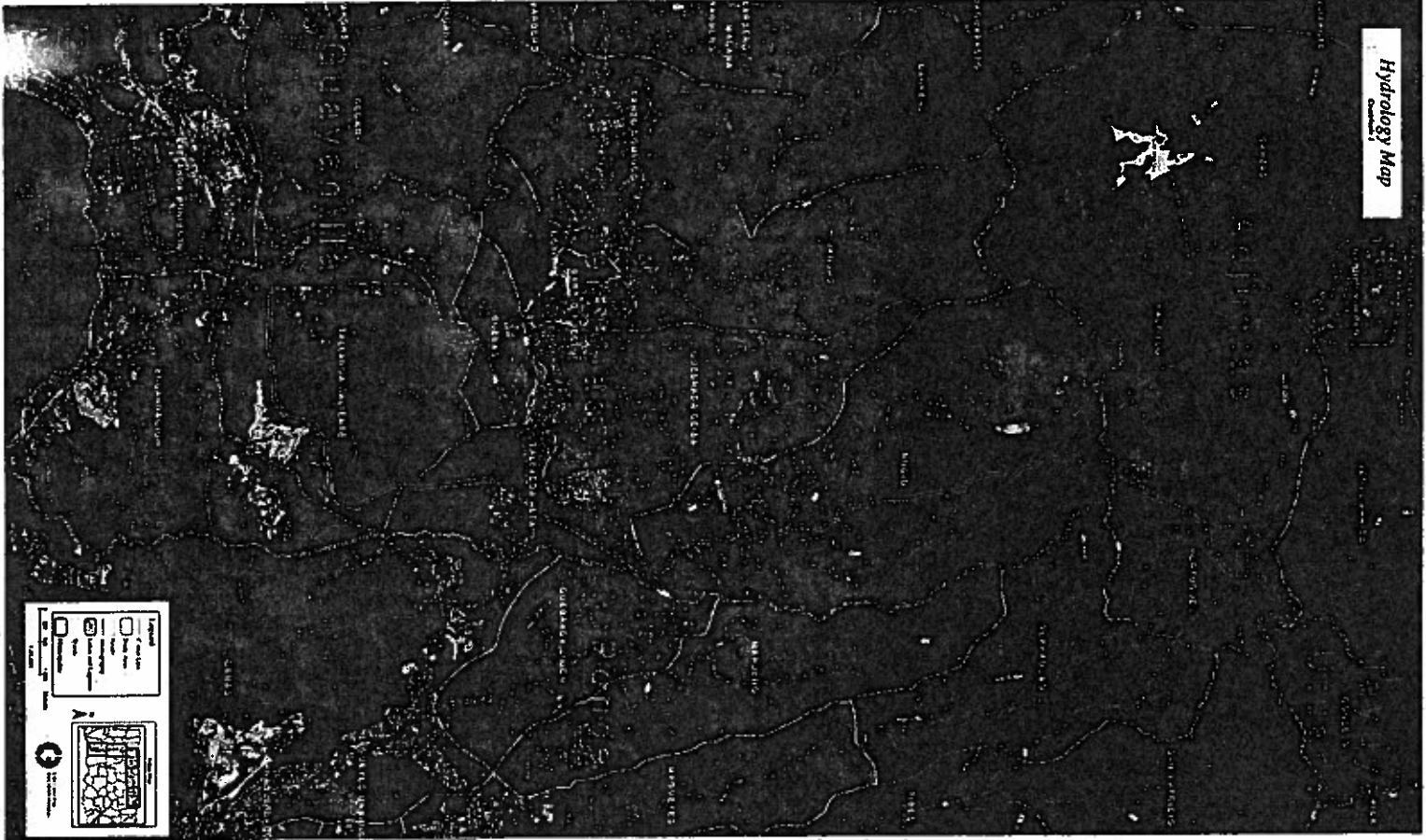
Hydrology Map
Candidate 3




US ARMY CORPS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 5 OF 16



US ARMY COPRS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 6 OF 16



 US ARMY CORPS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 7 OF 16

Via Verde NG Pipeline-
Cambalache Metering Station

Arecibo

Available Upland Area for 0.5-acre
Metering Station

HDD

Approximate Wetland Line

12-Inch Lateral


Via Verde Pipeline

Main Via Verde Pipeline

Main Via Verde Pipeline



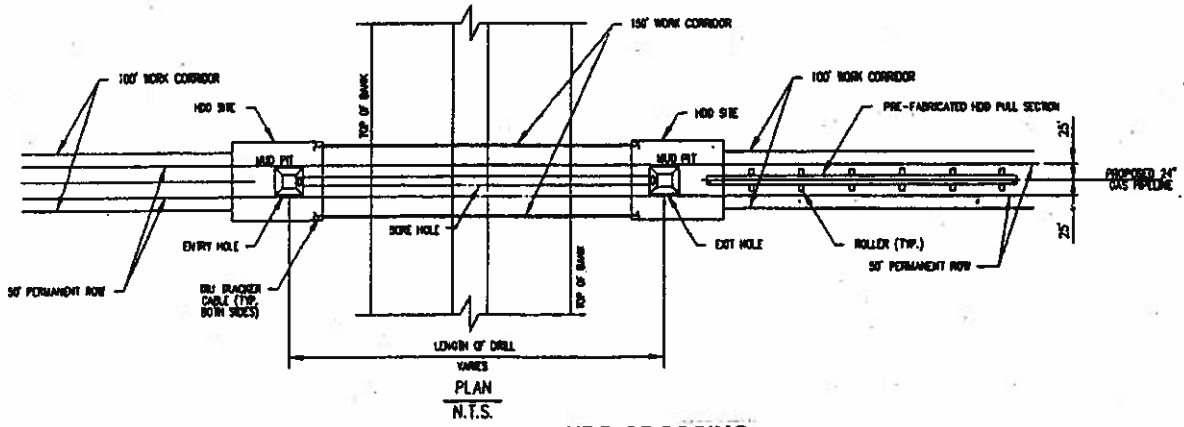
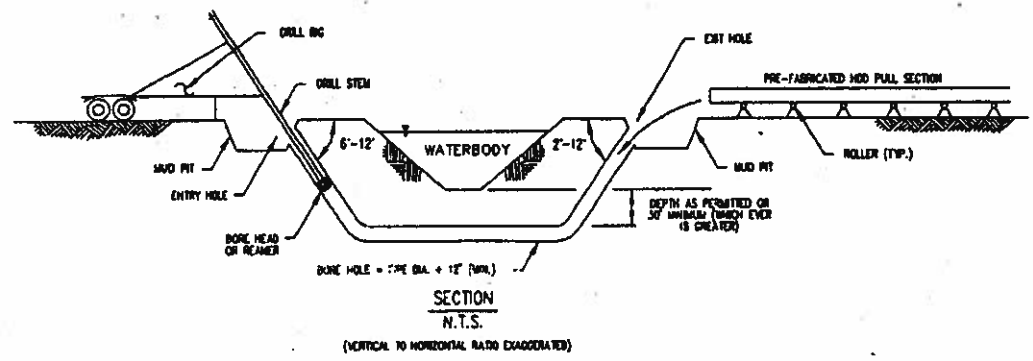
US ARMY CORPS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 8 OF 16



 US ARMY CORPS OF ENGINEERS

 PERMIT APPLICATION SAJ-2010-02881

 DRAWINGS NUMBER 1010, PAGE 9 OF 16

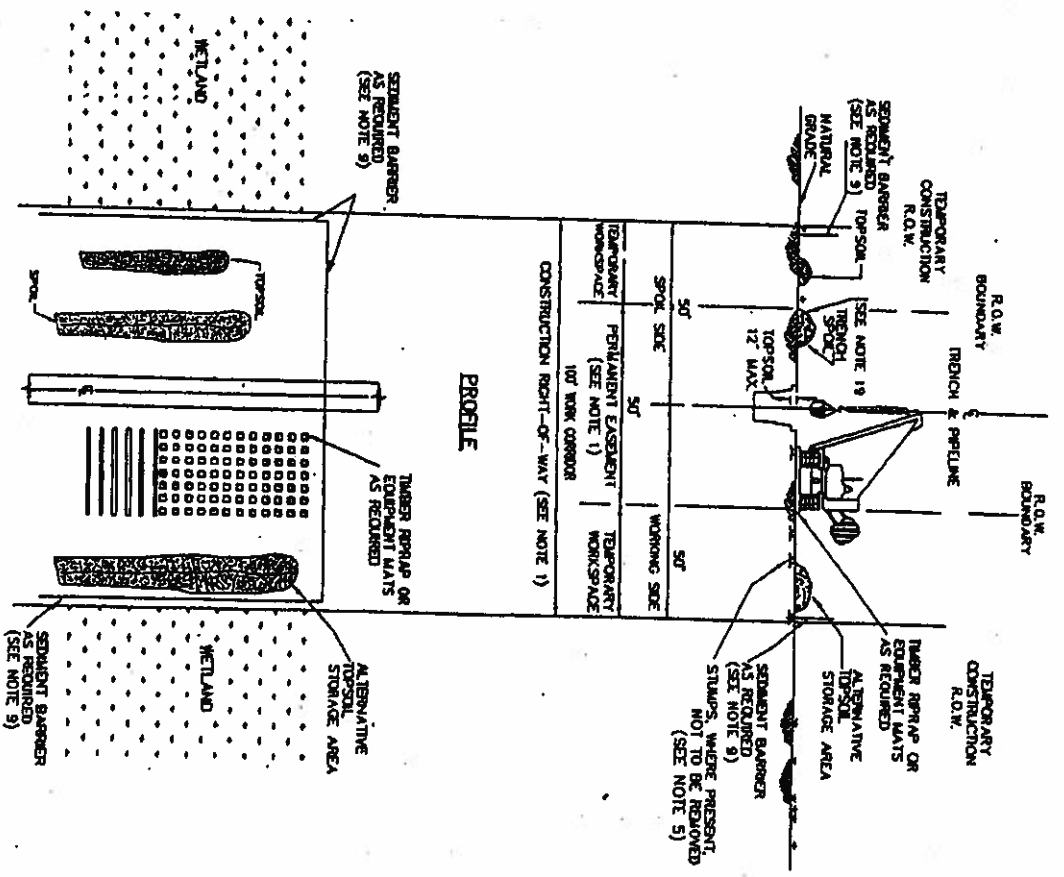


HDD CROSSING

				[REDACTED]		VIA VERDE PIPELINE PROJECT	
				DRW. BY:	JAM	07/01/10	TYPICAL PROPOSED 24" GAS PIPELINE HDD WATERBODY CROSSING
				CHK.			
				PRAT. ENGR.			
				PRAT. MGR.			
B	ISSUED FOR ENVIRONMENTAL PURPOSES	GDF	07/16/10	CLIENT APP.			DRG. NO. 48.0-Z-326.04 SH. NO. 1 OF 7 REV. B
A	ISSUED FOR REVIEW	JAM	07/01/10	SCALE: NONE			
NO.	REVISION-DESCRIPTION	BY	DATE	CHK'D	APP'D		



US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 10 OF 16



PROFILE

PLAN VIEW

NO. OF SHEETS	10
TOTAL SHEETS	10
DATE	2/19/01
PROJECT	PREPA
DESCRIPTION	VIA VERDE PIPELINE PROJECT
LOCATION	TYPICAL WETLAND CROSSING
SHEET NO.	SHEET 2 OF 7

CONSTRUCTION NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND UP TO 25 FEET OF TEMPORARY WORKSPACE ON EITHER SIDE.
2. THE SAME LAYOUT APPLIES WHETHER CONSTRUCTION R.O.W. DOES OR DOES NOT ABUT A FOREIGH R.O.W.
3. LOCATE ANY EXTRA TEMPORARY WORK SPACE AREAS AT LEAST 25 FEET FROM EDGE OF WETLAND AND WITHIN THE APPLICABLE FULL WIDTH CONSTRUCTION R.O.W. WHENEVER POSSIBLE.
4. CLEARING OF VEGETATION AND TRESS IS PROHIBITED BETWEEN TEMPORARY EXTRA WORK SPACE AND THE EDGE OF THE WETLAND.
5. CUT VEGETATION AND TREES OFF AT GROUND LEVEL, LEAVING EXISTING ROOT SYSTEMS IN PLACE WHEREVER PRACTICABLE, AND REMOVE CUTTINGS FROM THE WETLAND FOR DISPOSAL.
6. LIMIT CONSTRUCTION EQUIPMENT TO ONE PASS THROUGH WETLANDS TO THE EXTENT PRACTICABLE.
7. NO REENTLING OF EQUIPMENT WITHIN 100 FEET OF WETLAND EXCEPT IN ACCORDANCE WITH THE SPEC PLAN.
8. IF SATURATED AT TIME OF CONSTRUCTION, REDUCE SOIL COMPACTION BY UTILIZING WIDE-TRACK OR BALLOON TIRE CONSTRUCTION EQUIPMENT OR NORMAL EQUIPMENT OPERATED ON TIMBER RIPRAP OR EQUIPMENT MATS.
9. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS IMMEDIATELY AFTER INITIAL GROUND DISTURBANCE AND AT THE EDGE OF CONSTRUCTION R.O.W. ALONG THE WETLAND AS DIRECTED BY THE COMPANY'S INSPECTOR.
10. THIS DRAWING REFLECTS TRENCH, ONLY, TOPSOIL STRIPPING PROCEDURE FOR AREAS WHERE STANDING WATER OR SATURATED SOIL ARE NOT PRESENT.
11. SALVAGE UP TO 12" OF TOPSOIL OVER TRENCH AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR. MAINTAIN SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL.
12. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILE.
13. IN UNSATURATED CONDITIONS, SPOIL MAY BE USED TO STABILIZE THE WORKING SIDE.
14. IF SATURATED AT TIME OF CONSTRUCTION, LEAVE HARD PLUGS AT THE EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
15. TRENCH THROUGH WETLANDS.
16. LOWER-IN PIPE, INSTALL TRENCH BEARERS AT WETLAND EDGES AS DIRECTED BY THE COMPANY'S INSPECTORS TO PREVENT DRAINAGE. BACKFILL UPON COMPLETION OF CONSTRUCTION.
17. REMOVE ALL TIMBER, RIPRAP OR EQUIPMENT MATS FROM WETLANDS UPON COMPLETION OF CONSTRUCTION.
18. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND REPLACE TOPSOIL, WHERE SALVAGED, WITHOUT A CROWN OVER THE TRENCH.
19. IF STANDING WATER IS NOT PRESENT, SEED AS SPECIFIED.
20. TOPSOIL AND TRENCH SPOIL, RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.


VIA VERDE PIPELINE PROJECT

TYPICAL WETLAND CROSSING
CONSTRUCTION NOTES

DATE	BY	REVISION
JUN 14		07/20/10
OK		
PROJECT		
SCALE		
SCALE	NONE	
DRAWING NO.	48-0-2-326.05	SHEET NO. 3 OF 7
		REV. 8



US ARMY CORPS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 11 OF 16



US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAL-2010-02881
 DRAWINGS NOV 2010, PAGE 12 OF 16

DATE	DATE	DATE
07/01/10		
DESIGN	DATE	DATE
NO. OF SHEETS	NO. OF SHEETS	NO. OF SHEETS
4 OF 7		

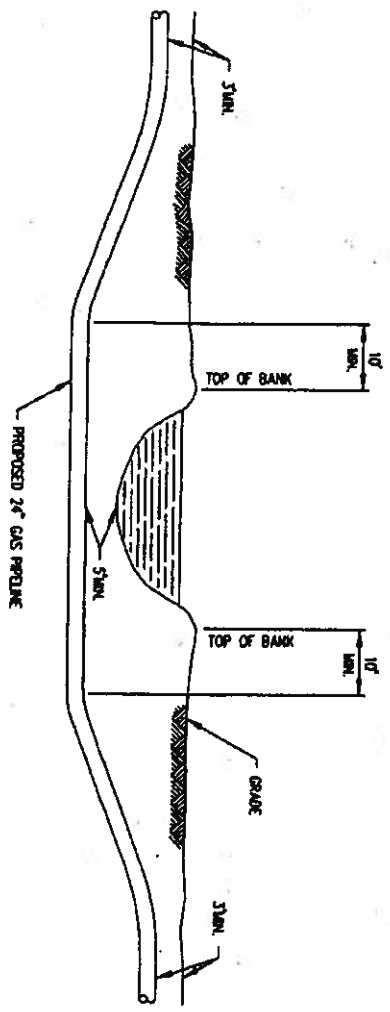
VIA VERDE PIPELINE PROJECT

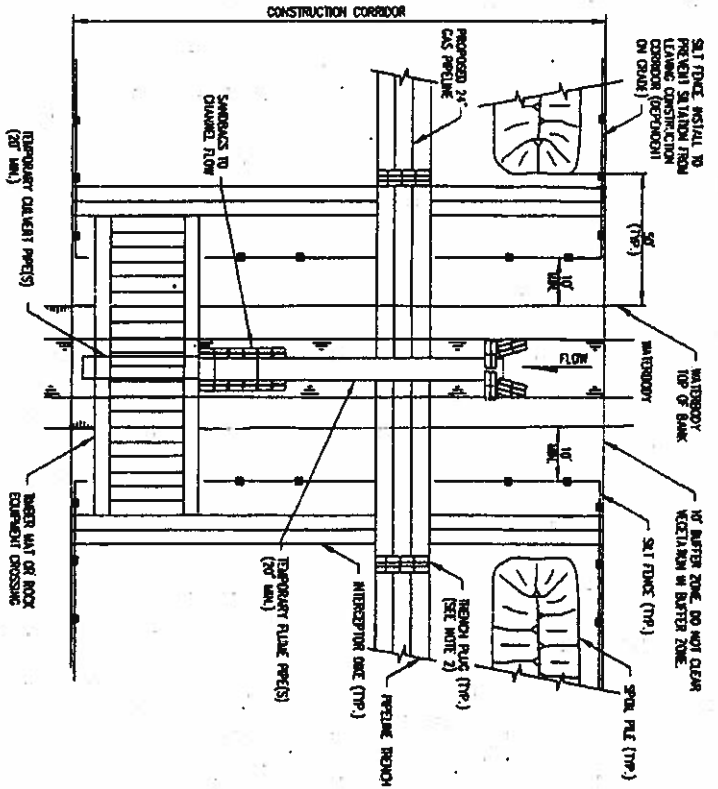
TYPICAL

MINOR WATERBODY CROSSING
 OPEN CUT CROSSING DETAIL

48-0-Z-326.05


TYPICAL MINOR WATER BODY CROSSING
 FOR TRENCHING





TYPICAL WATERBODY CROSSING

1. SAFETY FENCE AND INTERCEPTOR DUNE TO BE REMOVED AFTER PERMITS ARE OBTAINED FOR CONSTRUCTION OF PERMITS SAFETY FENCE AND INTERCEPTOR DUNE TO BE REPLACED AFTER COMPLETION OF BENCH.
2. USE HARD OR SOFT PILES PRIOR TO PERMITS INSTALLATION. INSTALL PERMITS SAFETY FENCE AFTER PERMITS INSTALLATION AND PRIOR TO BACKFILLING PERMITS TRENCH.
3. NUMBER OF PILES MAY BE INCREASED AS NECESSARY TO SAFETY FENCE.



US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 13 OF 16

DATE	1/12/10	VIA VERDE PIPELINE PROJECT
BY	CSF	
CHECKED		ENVIRONMENTAL DETAIL TYPICAL
PROJECT		
SCALE	NONE	WATERBODY CROSSING FILMED CROSSING METHOD
DATE		
SHEET NO.	48.0-2-326.51	5 OF 7
TOTAL SHEETS	8	



US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 14 OF 16

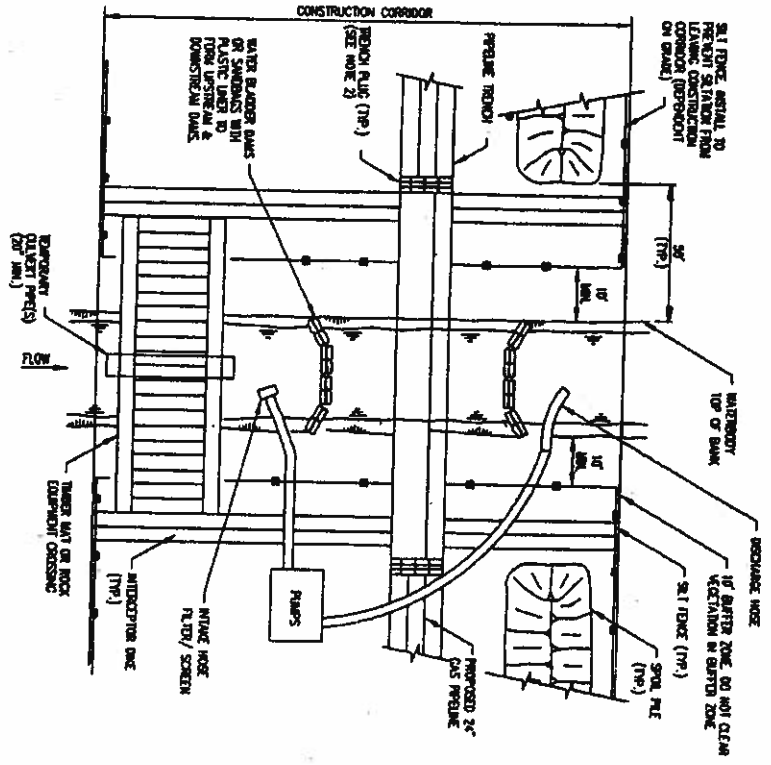
NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR CONSTRUCTION PURPOSES	07/16/10		

DATE	1/12/10
CHKD.	
PROJECT	
PROJECT NO.	
CLIENT	
SCALE	AS SHOWN

VIA VERDE PIPELINE PROJECT	
ENVIRONMENTAL DETAIL	
TYPICAL	
WATERBODY CROSSING	
DAM & PUMP METHOD	
DATE	48.0-2-326.50
SHEET NO.	8 OF 7
REV.	B

TYPICAL WATERBODY CROSSING

1. SALT FENCE AND INTERCEPTION ONE TO BE REMOVED ACROSS PIPELINE THROUGH DAMS PERMITTING FLOW OF PIPELINE, SALT FENCE AND INTERCEPTION ONE TO BE REDUCED AFTER BIDDING OF BRICK.
2. USE HAND OR SOFT PILES PRIOR TO PILE INSTALLATION. INSTALL PERMANENT THROUGH PILES AFTER PILE INSTALLATION AND PRIOR TO BACKFILLING PIPELINE BRICK.



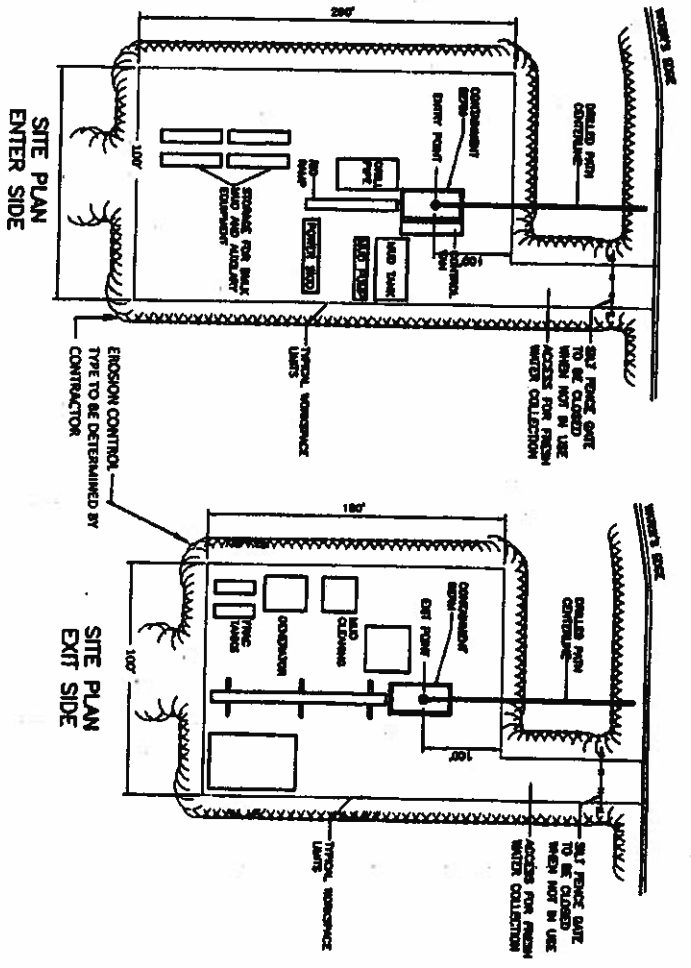
NOTES:

1. THIS METHOD APPLIES TO WATERBODIES WITH LIMITED FLOW AT THE TIME OF CONSTRUCTION WHERE DOWNSTREAM SILTATION MUST BE AVOIDED AND THE CROSSING WIDTH IS NOT PROHIBITIVE.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL IN-STREAM ACTIVITIES AS EXPEDITIOUSLY AS POSSIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF WATERBODY.
5. INSTALL TEMPORARY EQUIPMENT CROSSING IF REQUIRED.
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. CONSTRUCT SEDIMENT BARRIERS TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING INTO WATERBODY. CONSTRUCTED SEDIMENT BARRIERS SHALL EXTEND ALONG THE SIDES OF THE SPOIL AND TOPSOIL STOCKPOLES AND ACROSS THE ENTIRE CONSTRUCTION FLOW. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
8. CONSTRUCT UPSTREAM STRUCTURE (DAM), WATER STRUCTURES (AQUA DAM, JERSEY BARRIERS, AND BAGS, STEEL PLATE, POLYETHYLENE LINER, ETC.) FINAL LOCATION WILL BE APPROVED BY THE ENVIRONMENTAL INSPECTOR.
9. SIZE PUMPS FOR DIVERSION OF ENTIRE STREAM FLOW. CONTRACTOR SHALL MAINTAIN 100% SPARE PUMPING CAPACITY ON SITE. PUMPS SHALL BE INSTALLED ON POLYETHYLENE BARRIERS FOR FUEL/OIL SPILL CONTAINMENT. PUMP INTAKES WILL BE SCREENED TO PREVENT ENTRAPMENT OF FISH. CONTRACTOR SHALL MONITOR PUMPS AND WATER STRUCTURES ON A 24 HOUR BASIS UNTIL THE CROSSING INSTALLATION IS COMPLETE. SHOULD LEAKING AT THE DAM STRUCTURES OCCUR, CONTRACTOR SHALL DEMATER BETWEEN THE STRUCTURES THROUGH AN APPROPRIATE FILTER AND ONTO A WELL VEGETATED UPLAND AREA. NO HEAVILY SILT-LADEN WATER SHALL BE DISCHARGED INTO THE STREAM.
10. LEAVE HARD PLUGS AT STREAM BANK EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION.
11. COMPLETE CONSTRUCTION OF IN-STREAM PIPE SECTION. WEIGHT PIPE AS NECESSARY PRIOR TO COMMENCEMENT OF IN-STREAM ACTIVITY.
12. TRENCH THROUGH WATERBODY AS EXPEDITIOUSLY AS PRACTICAL. INSTALL TEMPORARY (SOFT) PLUGS, IF NECESSARY, TO CONTROL WATER FLOW AND TRENCH SLOUGHING.
13. MAINTAIN STREAM FLOW THROUGHOUT CROSSING CONSTRUCTION.
14. LOWER-IN PIPE. INSTALL TRENCH PLUG AND BACKFILL IMMEDIATELY.
15. BACKFILL WITH NATIVE MATERIAL.
16. RESTORE WATERBODY CHANNEL TO APPROPRIATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
17. DISMANTLE DOWNSTREAM WATER STRUCTURE (DAM) AND UPSTREAM WATER STRUCTURE (DAM) AFTER TRENCH BACKFILL.
18. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.

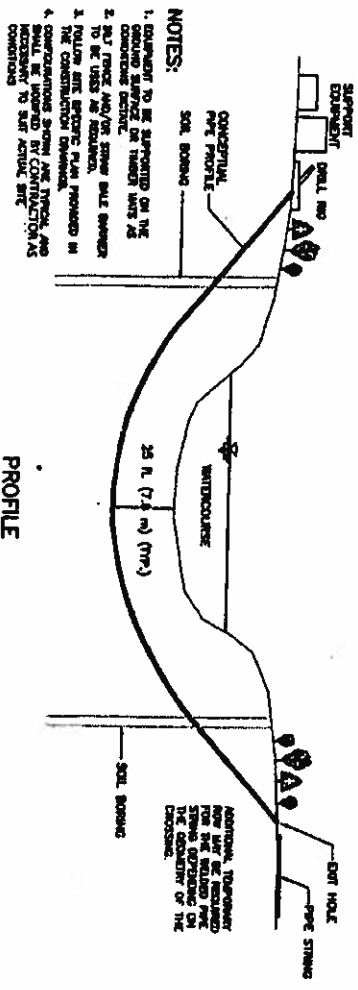


US ARMY CORPS OF ENGINEERS
PERMIT APPLICATION SAJ-2010-02881
DRAWINGS NOV 2010, PAGE 15 OF 16

	VIA VERDE PIPELINE PROJECT
DRAWN BY: JHM	DATE: 07/09/10
CHECKED BY:	DATE:
SCALE: NONE	
CONSTRUCTION NOTES:	CONSTRUCTION NOTES:
WATERBODY CROSSING OPEN CUT DAM / PUMP METHOD.	
DATE: 48.0-Z-326.05	SHEET NO.: 157
	7 OF 7
	8



HDD ENTRY and EXIT POINT DETAILS



PROFILE

- NOTES:**
1. EQUIPMENT TO BE SUPPORTED ON THE EXISTING SURFACE OR TYPICAL WAYS AS SHOWN ON THE DRAWING.
 2. ALL TRUCK AND/OR SHOWER WALK SWINGS TO BE USED AS REQUIRED.
 3. ALL TRUCK AND/OR SHOWER WALK SWINGS TO BE USED AS REQUIRED.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND NECESSARY TO SAFE ACTUAL SITE CONDITIONS.

US ARMY CORPS OF ENGINEERS
 PERMIT APPLICATION SAJ-2010-02881
 DRAWINGS NOV 2010, PAGE 16 OF 16

VIA VERDE		VIA VERDE PIPELINE PROJECT	
TYPICAL HORIZONTAL DRILL (HDD) SITE PLAN & PROFILE			
DETAIL 15		DATE: 11/10/10	
DRAWN BY: [Name]		CHECKED BY: [Name]	
DESIGNED BY: [Name]		APPROVED BY: [Name]	
CONTRACT NO. SAJ-2010-02881		SHEET NO. 16 OF 16	

