



South Texas Project Electric Generating Station 4000 Avenue F – Suite A Bay City, Texas 77414

October 12, 2010
U7-C-STP-ACE-100002

U.S. Army Corps of Engineers – Galveston District
Jadwin Building
2000 Fort Point Road
Attention: Jayson Hudson
Galveston, TX 77553-1229

South Texas Project
Units 3 and 4
SWG-2007-00786 Mitigation Plan

The STP Nuclear Operating Company (STPNOC) submits the enclosed Mitigation Plan in support of the Department of Army permit application SWG-2007-00786 for dredge and fill activities associated with the construction of Units 3 & 4.

If you have any questions regarding this application, please contact me at (361) 972-7136, or Russell W. Kiesling at (361) 972-4716.

A handwritten signature in black ink, appearing to read 'S. Head'.

Scott Head
Manager, Regulatory Affairs
South Texas Project, Units 3 & 4

rwk

Enclosure: STP Nuclear Operating Company Mitigation Plan for Stream Impacts at the South Texas Project Unit 3 & 4 Expansion, Wadsworth, Texas. October 2010

cc: w/o attachment except*
(paper copy)

(electronic copy)

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Kevin Pollo
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South Texas Project Electric Generating Station 4000 Avenue F – Suite A Bay City, Texas 77414



USACE Project No. SWG-2007-00786

**STP NUCLEAR OPERATING COMPANY
MITIGATION PLAN FOR STREAM IMPACTS AT THE SOUTH TEXAS PROJECT
UNIT 3 & 4 EXPANSION
Wadsworth, Texas
October, 2010**

Introduction

The STP Nuclear Operating Company (STPNOC) proposes to place up to six culverts in man-made, engineered conveyances as part of the South Texas Project (STP) Unit 3 & 4 expansion. Attachment 1 contains project drawings that identify locations for these impacts. The U.S. Army Corps of Engineers (USACE) Galveston District has determined that the proposed STP Unit 3 & 4 expansion would result in impacts to 265 linear feet (ft) of Section 404 regulated streambed. In a letter from the USACE dated 16 September 2010 to STPNOC's Manager of Regulatory Affairs, it was stated that 136 debits would be required as mitigation to compensate for the 265 linear ft of proposed project impacts to relatively permanent waters. Attachment 2 contains a copy of this letter. In addition, as stated in the USACE letter, this compensatory mitigation may include on-site permittee responsible mitigation, off-site permittee responsible mitigation, Mill Creek Mitigation Bank (MCMB) or a combination of all three. In order to meet the compensatory mitigation requirements outlined by the USACE, STPNOC proposes to participate in the MCMB. Availability of Mitigation Units at the MCMB is verified in Attachment 3 and the banking instrument for MCMB is contained in Attachment 4.

In accordance with 33 CFR 332.4(c)(i), Mitigation for Losses of Aquatic Resources, permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, may submit mitigation plans that include only items described in paragraphs (c)(5) and (c)(6), and the name of the specific mitigation bank or in-lieu fee program to be used. Item (c)(5) is titled Baseline Information and item (c)(6) is titled Determination of Credits, both of which are presented below.

Baseline Information

The 265 linear ft of project impacts would occur at six locations within the jurisdictional limits of man-made conveyances. The USACE exerted jurisdiction over these conveyances due to their relatively permanent flow characteristics. The six impact locations are associated with the installation of new culverts at three locations (A, B, F), each requiring 80 linear ft of impacts.

Additional impacts include the potential replacement of 3 existing culverts at the remaining three locations (C, D, E) requiring five, twenty, and zero linear ft of new impacts respectively. These six impact areas are characterized herein as six stream reaches (A, B, C, D, E, F) based on the locations of the culverts.

Two of the three locations that would require new culvert installations (Culverts A and B) exhibit channel morphology that has been excavated, straightened and uniform (engineered channel). Water flow is contained within these incised channels and occurs below the root zone. The top of stream banks at both of these locations are maintained through frequent, periodic mowing and consequently the riparian community is poor and virtually nonexistent. As a result, these two stream channel reaches receive full sun and contain very sparse wildlife habitat like woody debris or refugia. The Stream substrate is somewhat varied and contains cobble rip rap for the majority of these reaches.

The third location proposed for a new construction (Culvert F) is also an engineered channel with similar channel morphology and substrate characteristic as the other two new culvert locations. However, this stream reach has not been mowed and maintained regularly. Consequently, this impact area contains a more developed scrub/shrub strata as well as a dense herbaceous layer which minimally increases its riparian value.

The remaining stream reaches (Culverts C, D, and E), are engineered channels that have been excavated and straightened. Each could require replacement of existing culverts. These locations are severely incised with vertical stream banks where flows occur well below the root zone and are confined to the trapezoidal channel. The riparian buffer associated with Culvert C contains the existing roadway and the remainder is maintained through frequent periodic mowing activities, consequently this buffer provides limited habitat value. The riparian buffer associated with the location of Culverts D and E are actively mowed and maintained in its entirety. The in-stream habitat elements associated with these locations is considered poor due to the lack of shade, due primarily to the lack of riparian buffer, and the limited amount of woody debris and refugia that would be expected from maintained engineered conveyances.

Determination of Credits

As previously stated, the USACE determined that the proposed project impacts for installation of the new and replacement of the existing culverts would result in 265 linear ft of impacts to Waters of the U.S. which may require up to 136 debits of compensatory mitigation. This level of debits for compensatory mitigation was determined by the USACE by accessing the ecological condition of the impact area using the Unified Stream Methodology (USM). The results of the USM enabled the development of an impact factor (IF) score which was used to determine the level of debits necessary to compensate for project impacts to Waters of the U.S. In this instance, the IF scoring associated with Culvert A, B and F is characterized as severe which is equal to a score of 1, while Culverts C and D are characterized as moderate, which equals to a score of 0.5. This IF score combined with the reach condition index and linear ft of impacts determined that 136 debits would be required to compensate for 265 ft of linear impacts to Waters of the U.S.

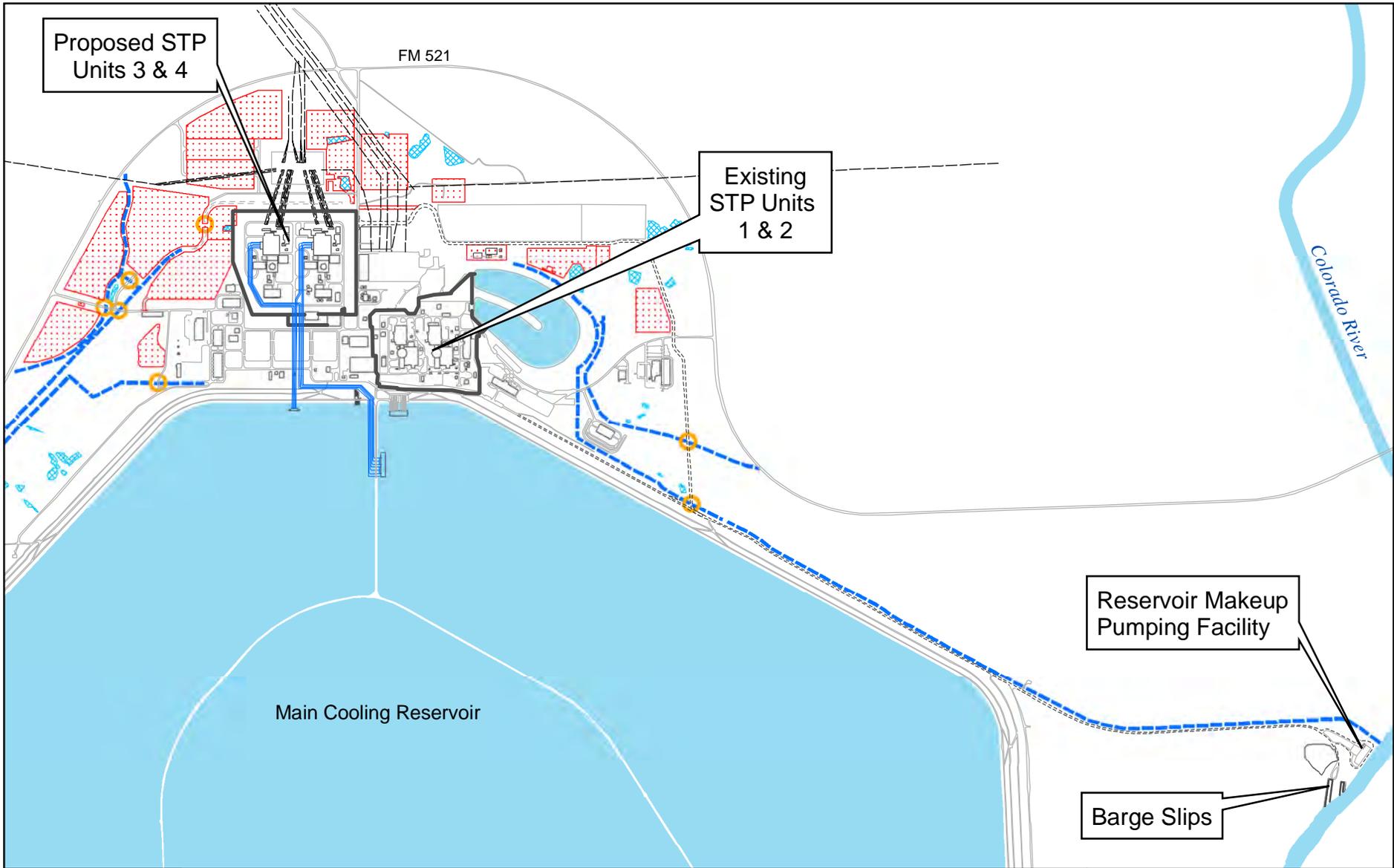
In order to compensate for the 265 linear ft of unavoidable project impacts to Waters of the U.S., STPNOC was provide four options by the USACE, which included on-site permittee responsible mitigation, off-site permittee responsible mitigation, use of MCMB, or a combination of all three. STPNOC has elected to compensate for project impacts by participating solely in the MCMB located in Austin County, Texas which is sponsored by Wetland Conservation Partners, LTD. STPNOC would purchase the equivalent of 136 debits in the MCMB in order to compensate for project impacts.

Mill Creek Mitigation Bank

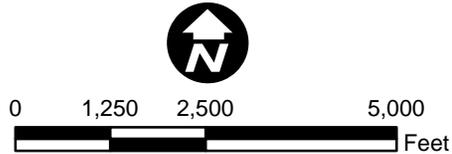
The MCMB was established and approved by the USACE in June 2008. MCMB has a total of 188.6 acres comprised of two tracts located in Austin County: the Shelby Unit (89.7 acres) and the Kenney Unit (98.9 acres). MCMB is generally comprised of Oak-Elm-Ash bottomland riparian wetlands along the West Fork of Mill Creek and Buffalo Creek. The Shelby Unit lands have been classified into three existing habitats: riparian forest wetlands, bottomland forested wetlands, and mixed scrub-herbaceous wetlands. The Kenny Unit contains bottomland forested wetlands, herbaceous wetlands and stream riparian zone habitats.

STPNOC would follow the procedures established in the MCMB mitigation instrument in order to legally secure in perpetuity, 136 debits to compensate for proposed project impacts related to installation and replacement of culverts.

Attachment 1
Project Drawings



-  Culvert Location
-  Jurisdictional Wetland
-  Jurisdictional Stream
-  Cooling Water Intake & Discharge
-  Transmission Line
-  Heavy Haul Road
-  Temporary Impacted Areas



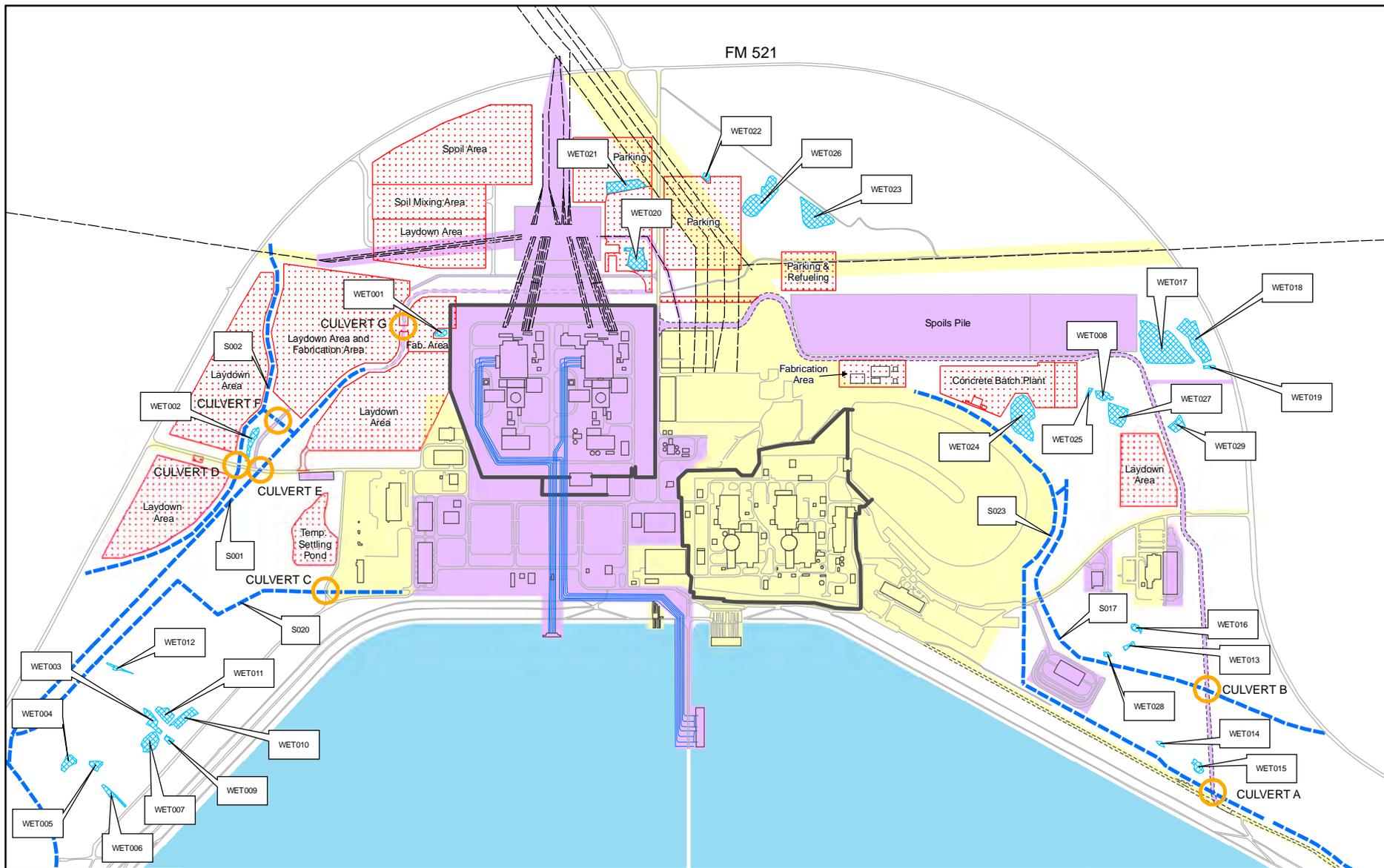
Reservoir Makeup Pumping Facility

Barge Slips

PBSJ 6504 Bridge Point Pkwy, Ste. 200
 Austin, Texas 78730
 Phone: (512) 329-8342 Fax: (512) 327-2453

Figure 1
South Texas Project
Location Map

Prepared for: USACE	Scale: 1 in = 2500ft
Job No.: 100015798	Prepared by: 18827
Date: 8-06-2010	File: N:\Clients\U_Z\USACE\STPNOC\100015798\geo\figs\STNP_Location.mxd



-  Culvert Location
-  Jurisdictional Wetland
-  Jurisdictional Stream
-  Cooling Water Intake & Discharge
-  Transmission Line
-  Heavy Haul Road
-  Existing Facilities
-  Proposed Facilities Permanent Impacts (Apprx 300 ac)
-  Proposed Facilities Temporary Impacts (Apprx 240 ac)



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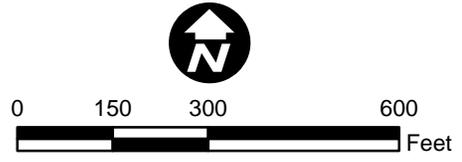
Figure 2
South Texas Project- Plot Plan
Units 1, 2, 3, & 4

Prepared for: USACE	Scale: 1 in = 1500ft
Job No.: 100015798	Date: 8-04-2010
Prepared by: 18827	

File: N:\Clients\U_Z\USACE\STPNOC\100015798\geo\figs\STNP_Site_Plan.mxd



- Barge Slip
- - - Drainage Ditch
- Proposed Expansion
- Area Available for Temporary Laydown and Staging

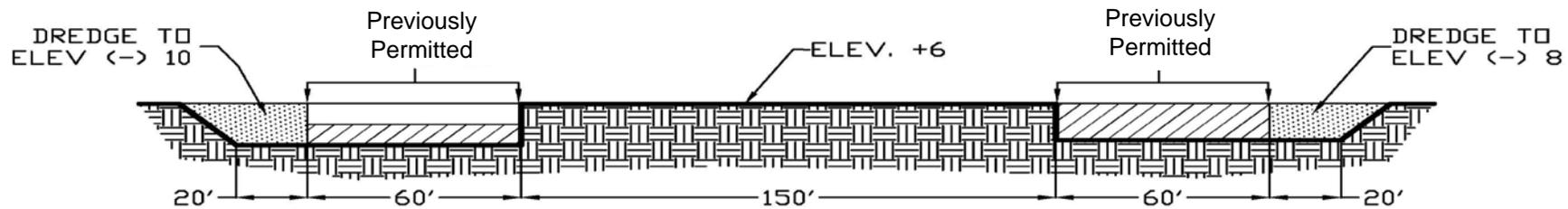


PBSJ 6504 Bridge Point Pkwy., Ste. 200
 Austin, Texas 78730
 Phone: (512) 329-8342 Fax: (512) 327-2453

Figure 3
South Texas Project
Barge Slips & Proposed Expansion

Prepared for: USACE	Scale: 1 in = 300ft
Job No.: 100015798	Prepared by: 18827
Prepared by: 18827	Date: 8-06-2010

File: N:\Clients\U_Z\USACE\STPNOC\100015798\geo\figs\STNP_Barge_Slip.mxd



CROSS SECTION BARGE SLIP

NOTE: ELEVATIONS SHOWN ARE IN FEET.
DATUM IS IN MEAN SEA LEVEL.

LEGEND

-  Proposed Expansion
-  Deposited Material To Be Removed

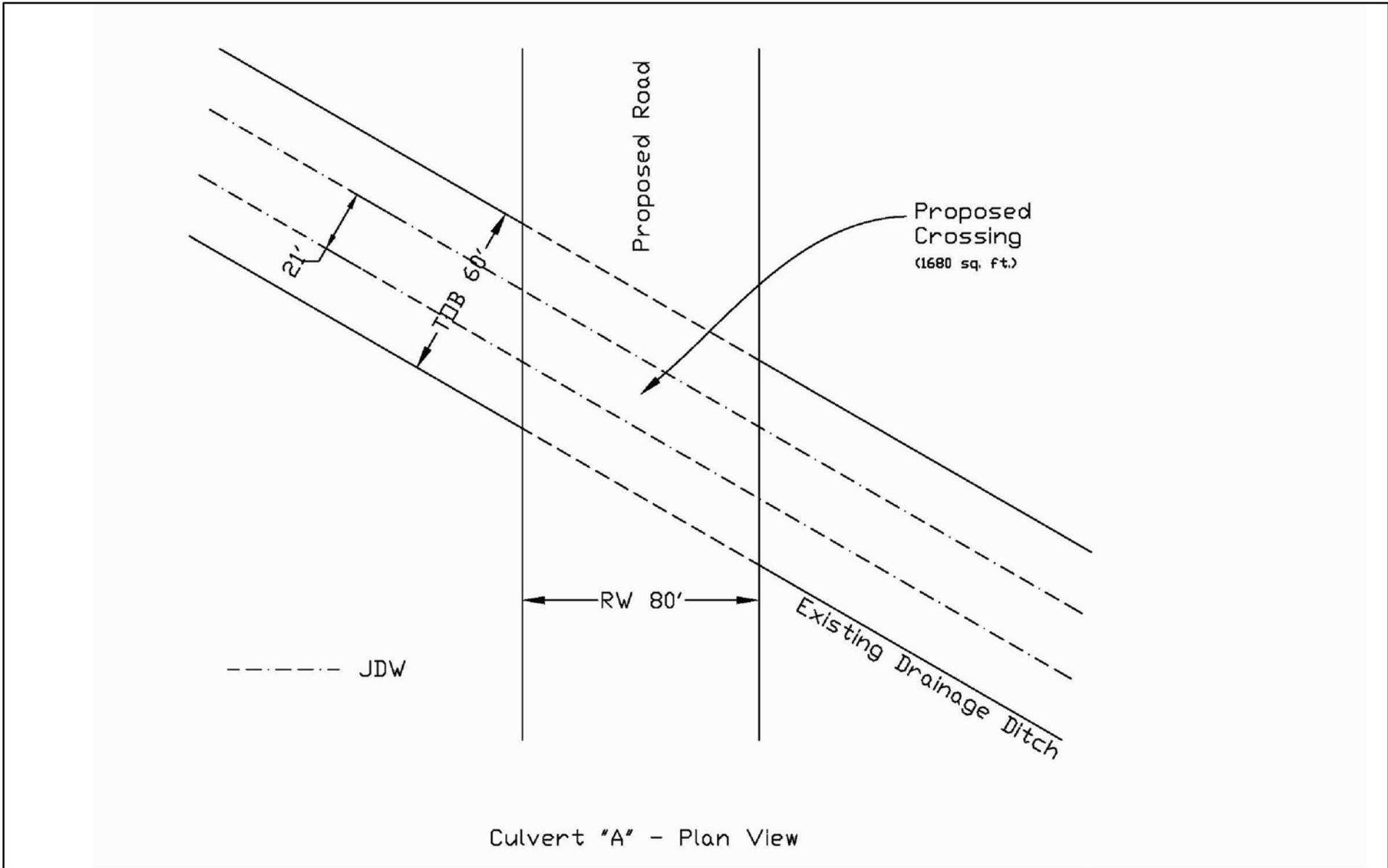


South Texas Project Units 3 & 4
Matagorda County, TX



- Engineering
- Environmental Consulting
- Surveying

Figure 4
South Texas Project
Barge Slips & Proposed
Expansion Cross Section



Culvert "A" - Plan View

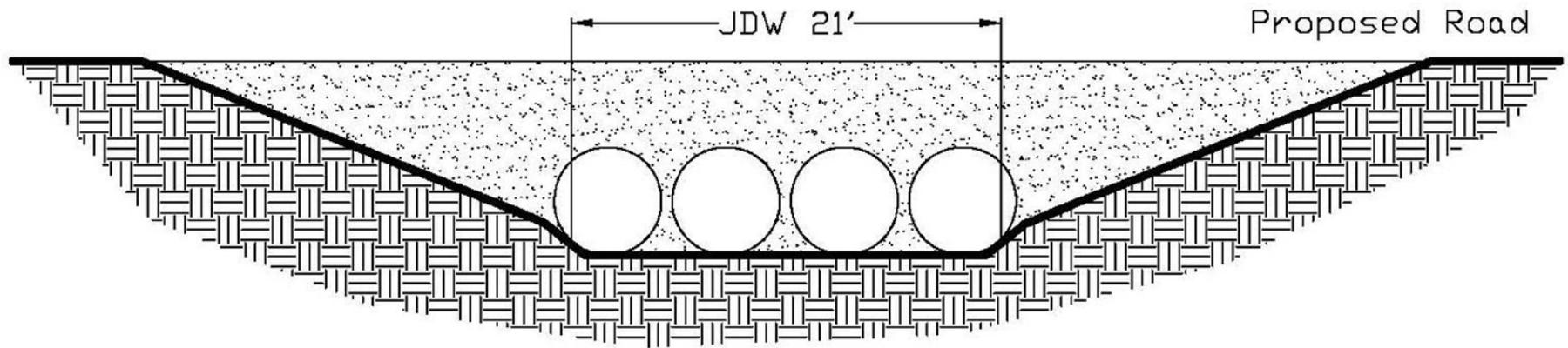


LEGEND
 JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

South Texas Project Units 3 & 4
 Matagorda County, TX

PBS
 • Engineering
 • Environmental Consulting
 • Surveying

Figure 5
 Culvert A - Plan View



Cross-section of culvert "A"



LEGEND

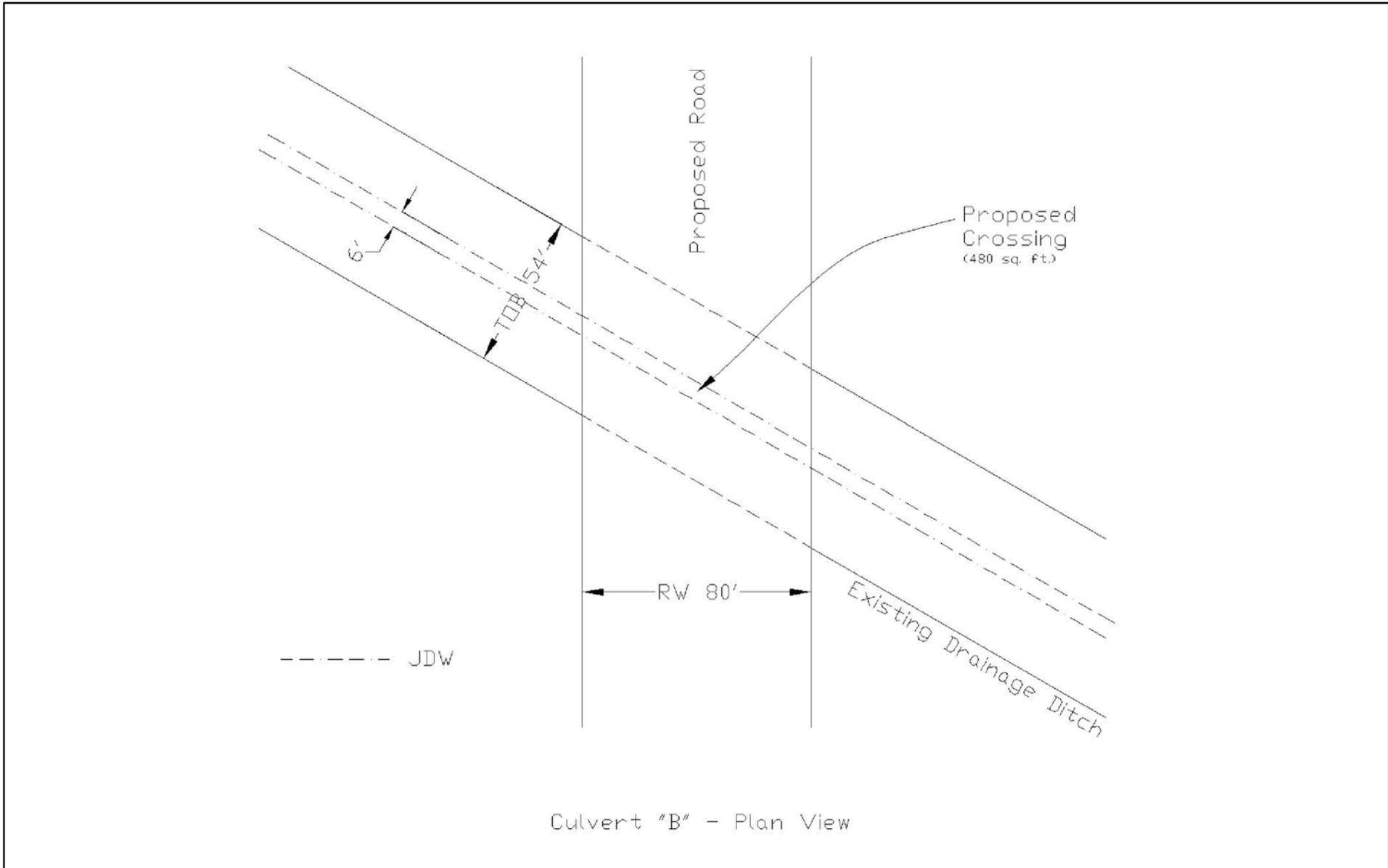
JDW: Jurisdictional Water

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Matagorda County, TX



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Figure 6
Culvert A - Cross Section



LEGEND

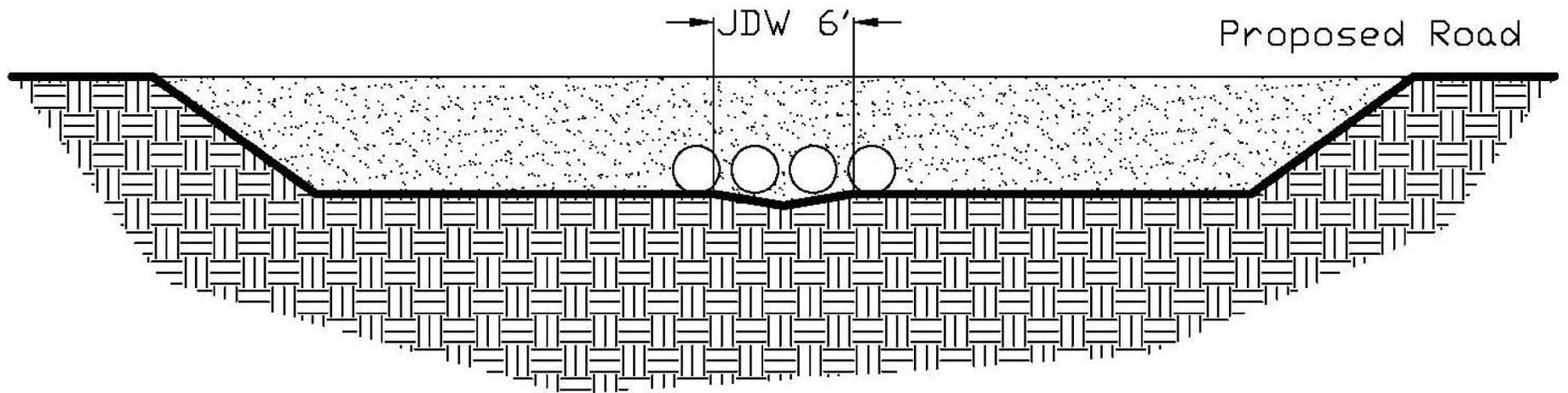
JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

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 Matagorda County, TX**



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Figure 7
 Culvert B - Plan View



Cross-section of culvert "B"



LEGEND

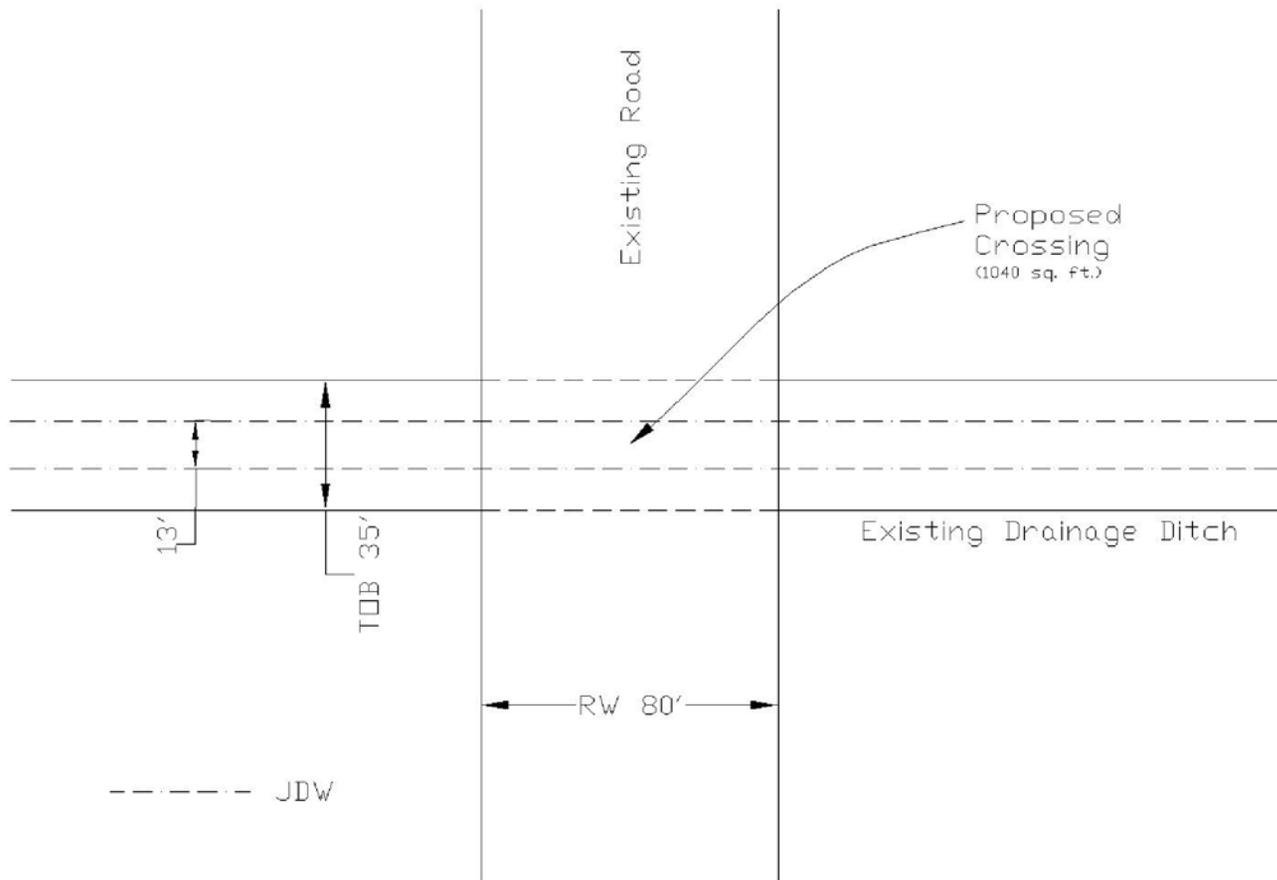
JDW: Jurisdictional Water

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- Surveying

Figure 8
Culvert B - Cross Section



Culvert "C" - Plan View



LEGEND

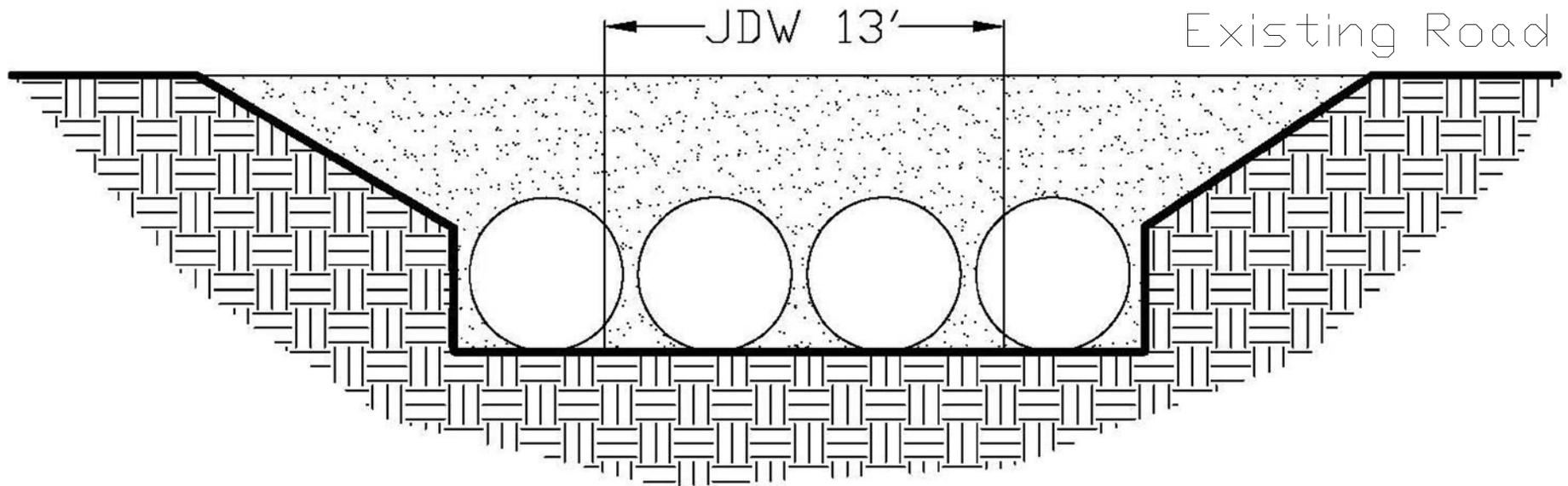
JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

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 Matagorda County, TX



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Figure 9
 Culvert C - Plan View



Cross-section of culvert "C"



LEGEND

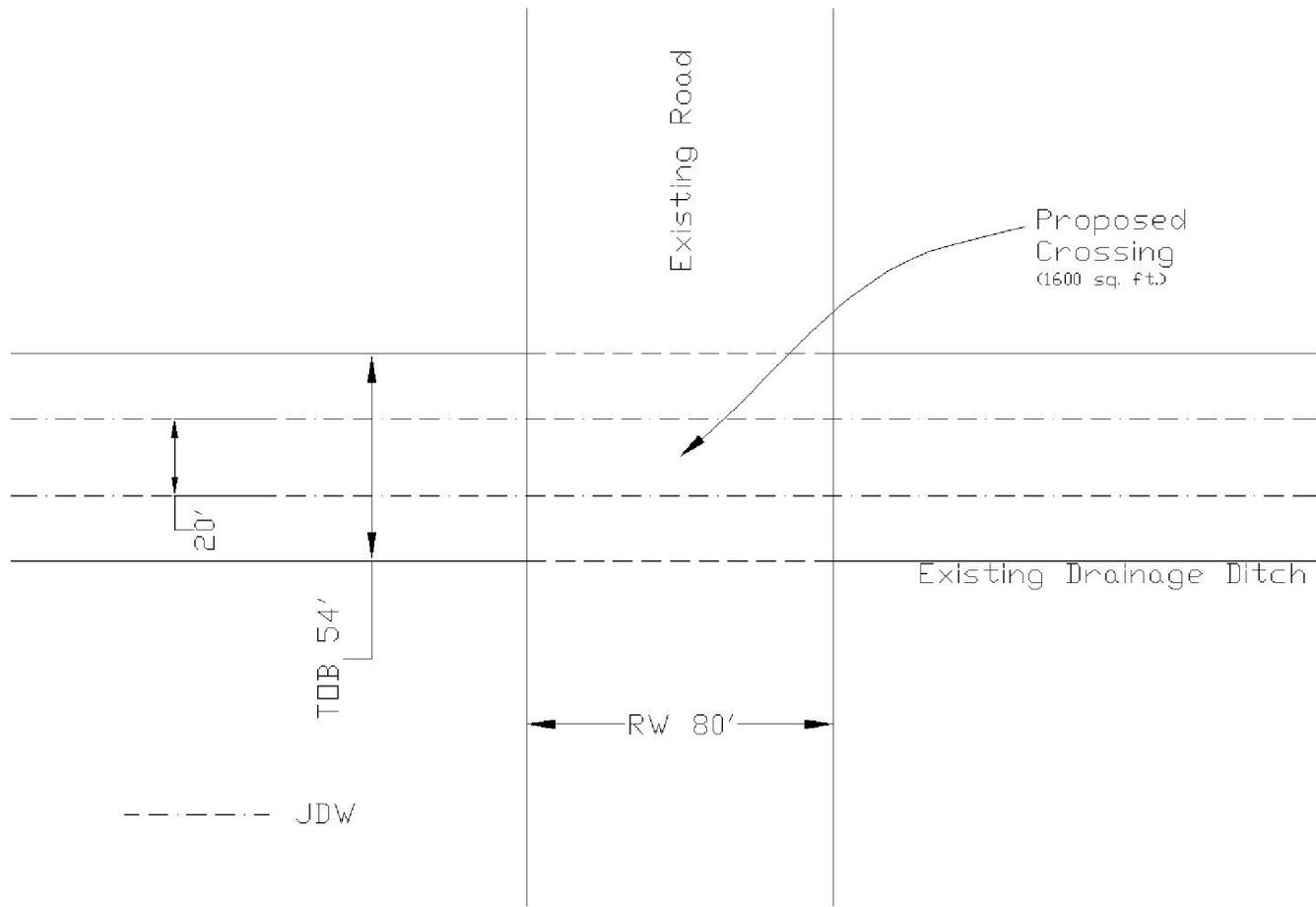
JDW: Jurisdictional Water

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Matagorda County, TX



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- Environmental Consulting
- Surveying

Figure 10
Culvert C - Cross Section



Culvert "D" - Plan View



LEGEND

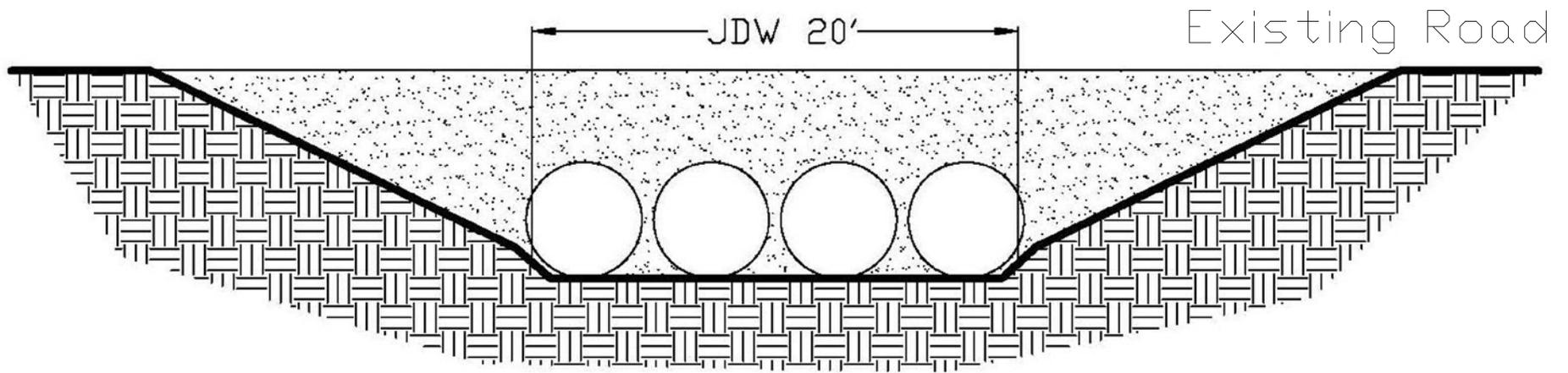
JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

**South Texas Project Units 3 & 4
 Matagorda County, TX**



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- Surveying

Figure 11
 Culvert D - Plan View



Cross-section of culvert "D"



LEGEND

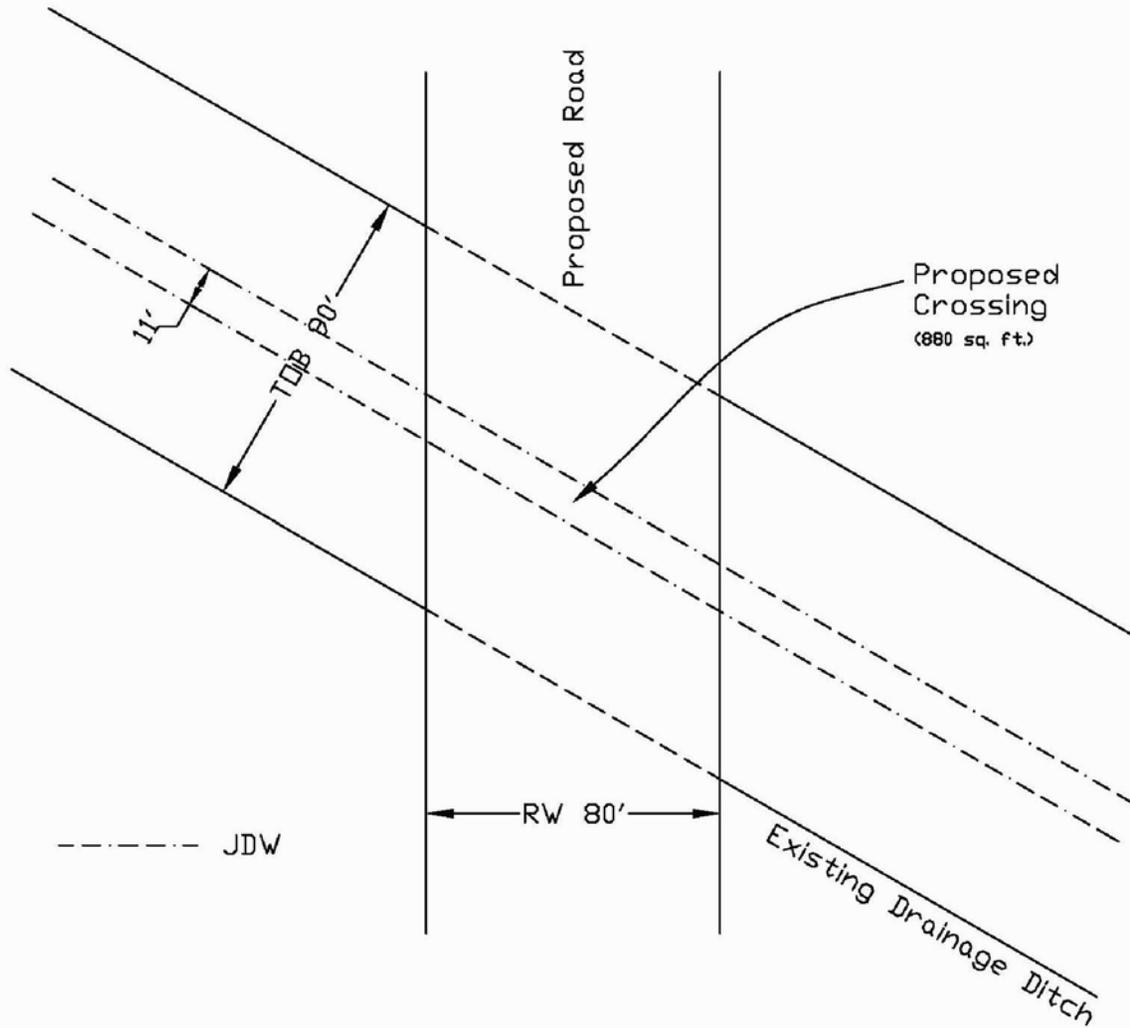
JDW: Jurisdictional Water

South Texas Project Units 3 & 4
Matagorda County, TX



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- Surveying

Figure 12
Culvert D - Cross Section



Culvert "E" - Plan View



LEGEND

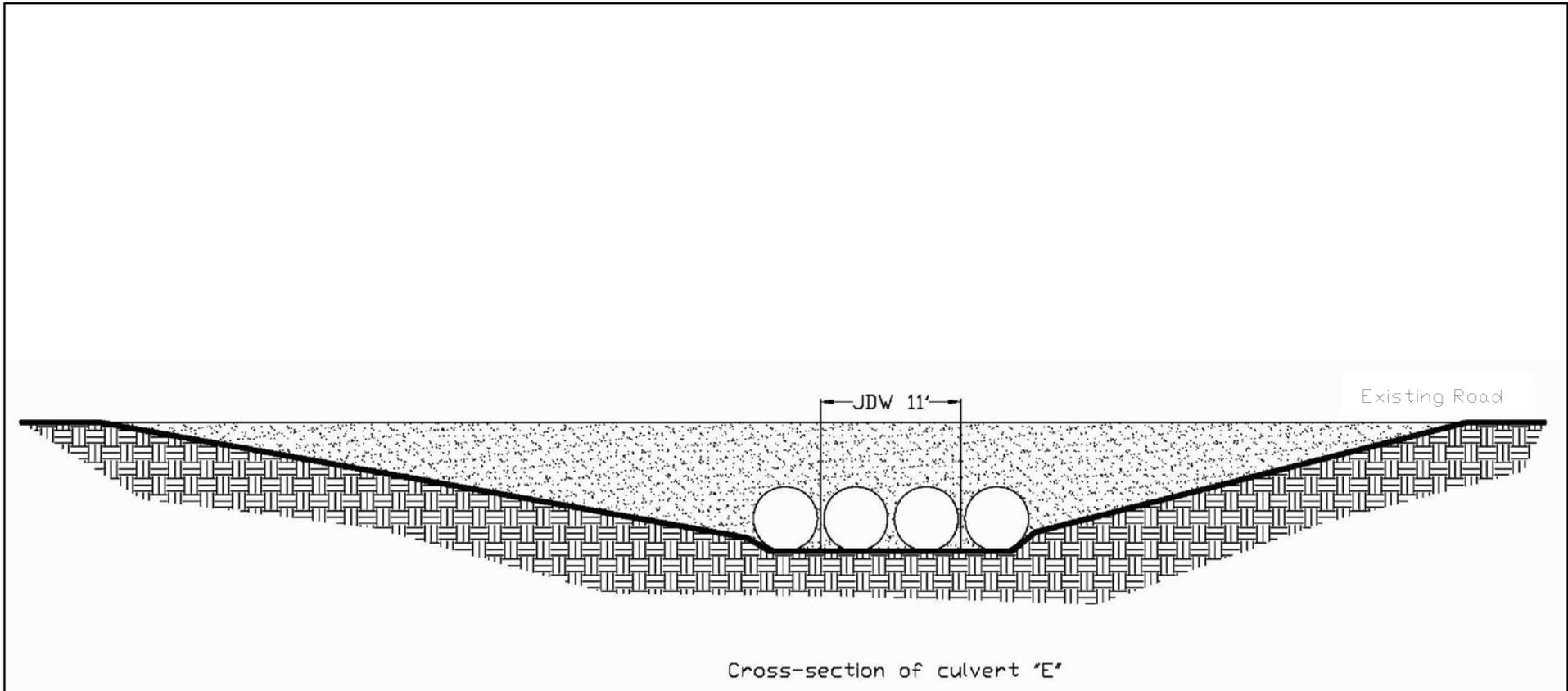
JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

South Texas Project Units 3 & 4
 Matagorda County, TX



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- Environmental Consulting
- Surveying

Figure 13
 Culvert E - Plan View



LEGEND

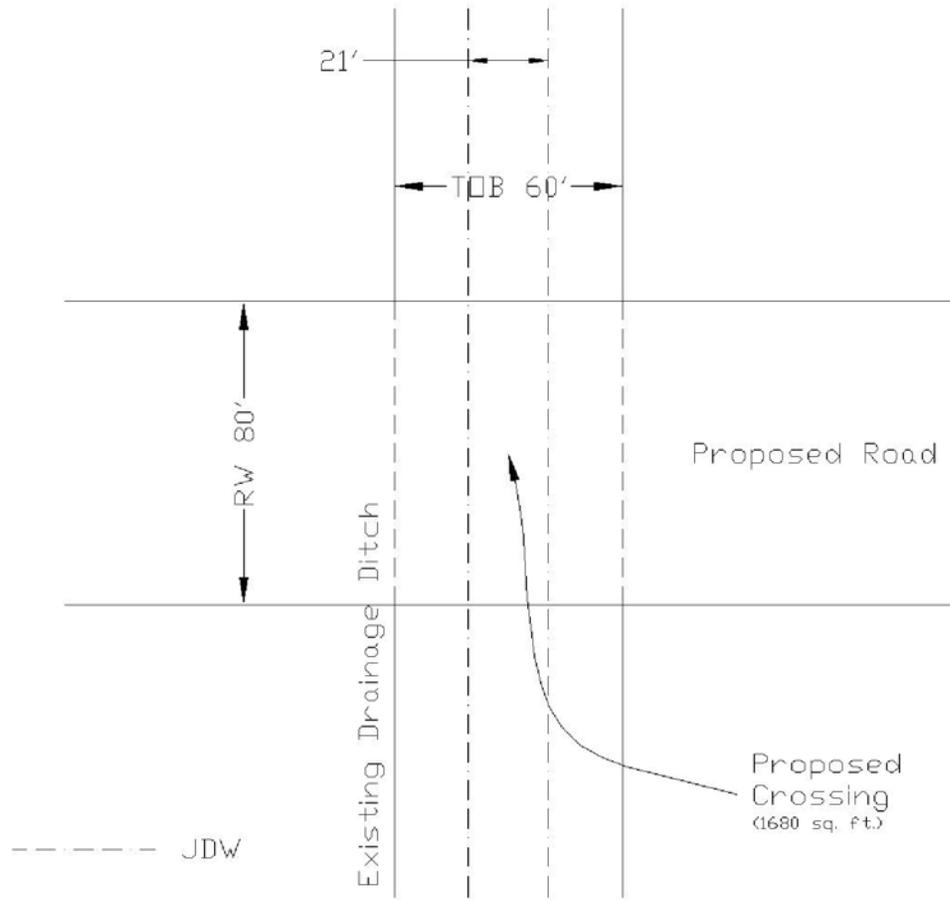
JDW: Jurisdictional Water

South Texas Project Units 3 & 4
Matagorda County, TX



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- Environmental Consulting
- Surveying

Figure 14
Culvert E - Cross Section



Culvert "F" - Plan View

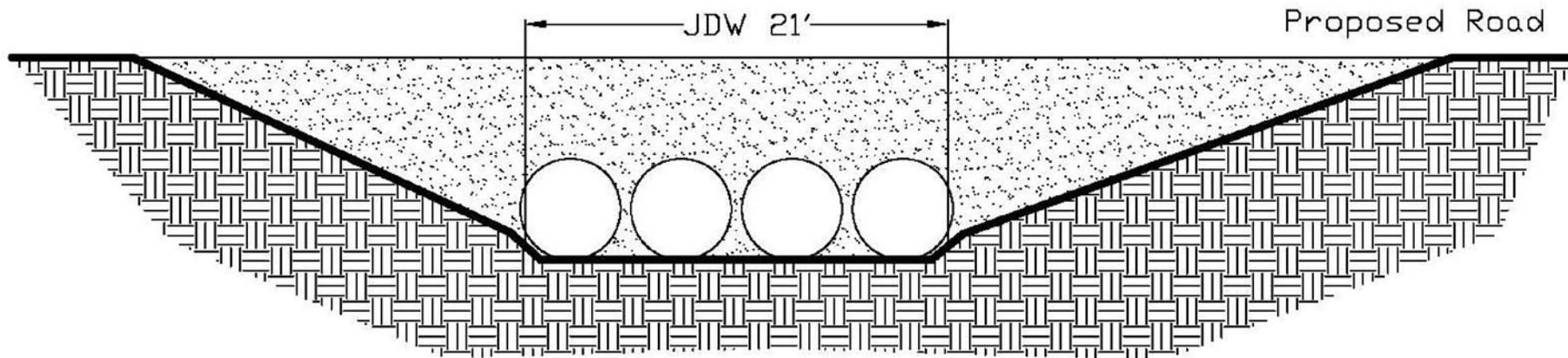


LEGEND
 JDW: Jurisdictional Water
 RW: Road Width
 TOB: Top Of Bank

South Texas Project Units 3 & 4
 Matagorda County, TX

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 • Environmental Consulting
 • Surveying

Figure 15
 Culvert F - Plan View



Cross-section of culvert "F"



LEGEND

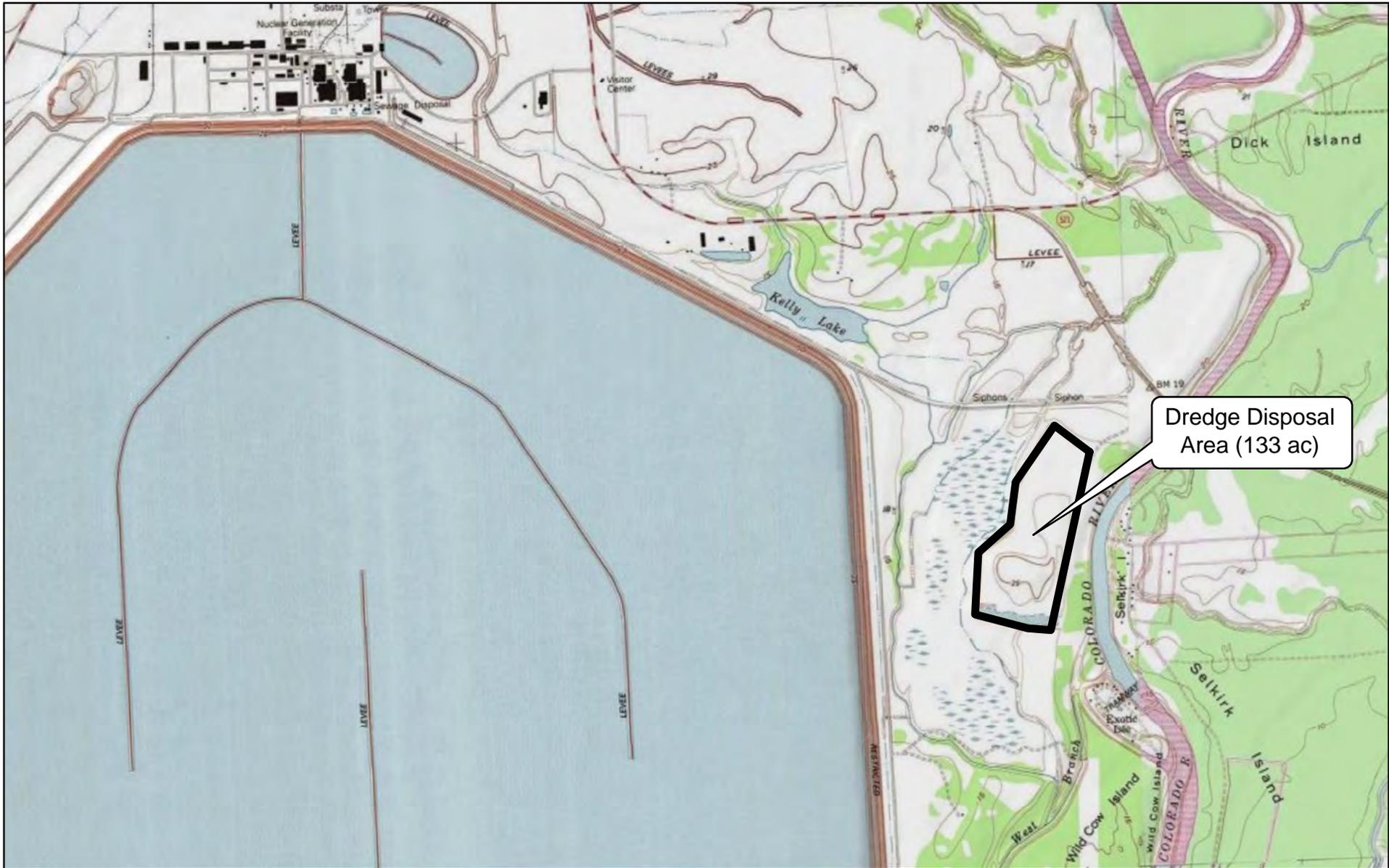
JDW: Jurisdictional Water

South Texas Project Units 3 & 4
Matagorda County, TX



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- Surveying

Figure 16
Culvert F - Cross Section



Dredge Disposal Area (133 ac)



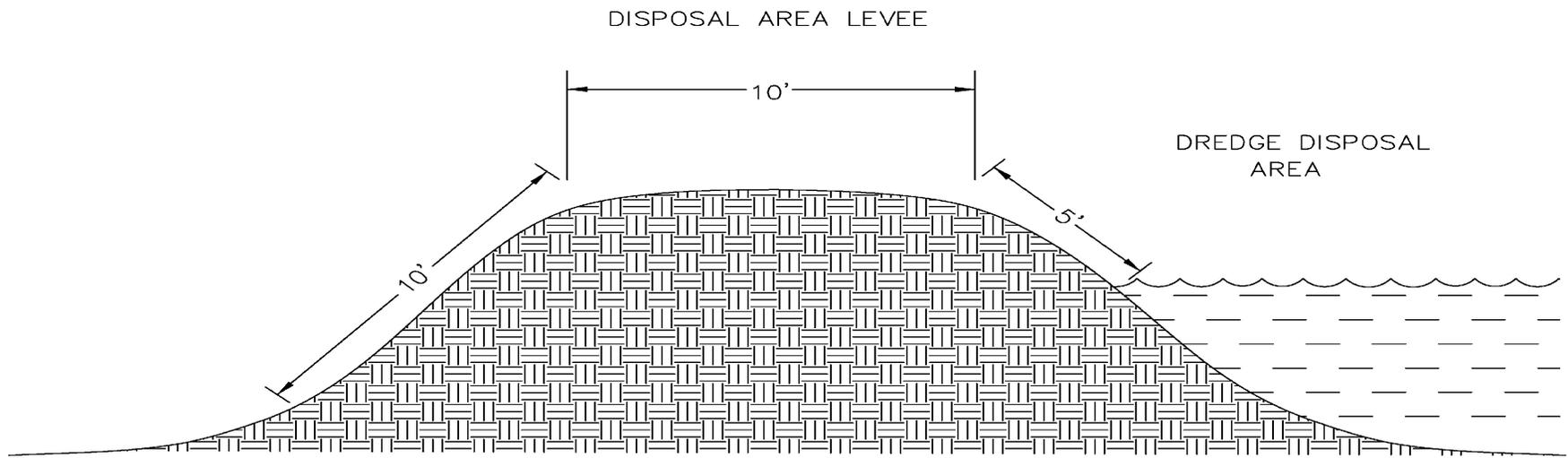
NOT TO SCALE

South Texas Project Units 3 & 4 Matagorda County, TX



- Engineering
- Environmental Consulting
- Surveying

Figure 17
Dredge Disposal Area Location



South Texas Project Units 3 & 4
Matagorda County, TX



- Engineering
- Environmental Consulting
- Surveying

Figure 18
Dredge Disposal Levee
Cross Section

Attachment 2

USACE Unified Stream Methodology Report



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TX 77553-1229

SEP 16 2010

Policy Analysis Section

SUBJECT: SWG-2007-00768; STP Nuclear Operating Company, Permit Determination

Mr. Scott Head
Manager, Regulatory Affairs
South Texas Project, Units 3 & 4
4000 Avenue F, Suite A
Bay City, Texas 77414

Dear Mr. Head:

By letter dated June 10, 2010, the U.S. Army Corps of Engineers (Corps) requested a stream functional assessment, such as the Unified Stream Methodology, be conducted on the relatively permanent waters to determine if compensatory mitigation is required. Enclosed you will find a copy of the Unified Stream Methodology assessment conducted by the Corps on the relatively permanent waters located at the South Texas Project south of Bay City, along the Colorado River, in Matagorda County, Texas.

The stream functional assessment concluded that the proposed impacts to the 265 linear feet of relatively permanent waters is a moderate to severe impact that may require up to 136 debits of compensatory mitigation. Compensatory mitigation may include on-site permittee responsible mitigation, off-site permittee responsible mitigation, Mill Creek Mitigation Bank or a combination of all three. In order to evaluate a proposed mitigation plan, a plan in accordance with 33 CFR 332.4(c) must be submitted for review.

We are ready to assist you in whatever way possible. We can even arrange a meeting between you and the concerned parties if that is your desire. Please call Jayson Hudson at 409-766-3108 if you need help.

Sincerely,

A handwritten signature in black ink, appearing to read "Casey Cutler".

Casey Cutler
Chief, Policy Analysis Section

Enclosure

Copy Furnished w/encl:

U.S. Nuclear Regulatory Commission, c/o Ms. Jessie Muir M/S T7-E30, 11555 Rockville Pike,
Rockville, MD 20852

COPY

MEMORANDUM FOR THE FILE

SUBJECT: SWG-2007-00768; South Texas Project, Bay City, Matagorda County, Texas

1. A stream assessment, in accordance with the Unified Stream Methodology, was conducted to assist in the determination of the current condition and function of several unnamed relatively permanent waters located at the South Texas Project Nuclear Power Plant located southwest of Bay City, Matagorda County, Texas
2. A desk review was completed on 13 July 2010. The desk review consisted of an examination of the following information:
 - 1952 (1972 photo-revised) U.S.G.S Blessing SE topographic quadrangle
 - 1943, 1965, 2009 aerial photography
3. A review of the historical aeriels and topographic map indicate that no natural stream existed prior to the construction of the nuclear power plant in the late 1970s. The Corps exerted jurisdiction as a water of the United States over the manmade conveyances due to their relatively permanent flow of water. The applicant is proposing to install culverts in 6 waters, 3 of which are new work and three of which are expansions to existing culverts.
4. A site visit was conducted on 14 July 2010. During the site visit, the Unified Stream Methodology was utilized to determine the condition of the waters. The waters were divided into 5 stream assessment reaches (SAR) based on the location of the crossings. The waters were characterized in the field as an intermittent to perennial.

Three SARs, SAR A, B and F are all new work and will result in impacts to 80 linear feet of waters. These SARs were assessed with an impact factor of 1.0, or severe, as a result of the new impacts. SARs A and B were characterized as having: severe channel conditions due to their vertical banks, incised flow located well below rooting depth and riprap banks; high poor buffer due to the mowing and maintenance poor in-stream habitat since none of the habitat types were present; and a severe channel alteration because of the straight, trapezoid channel alignment. SAR F scored similarly, with the exception of having a high marginal riparian buffer score resulting from the lack of mowing and subsequent presence of a scrub/shrub story.

SARs C and D are areas where culverts currently exist, but will need to be enlarged to accommodate the new haul roads. Because of the existing impacts to these waters, an impact factor of 0.5 was assessed. SARs C and D were characterized as: having severe channel conditions due to their vertical banks, incised flow located well below rooting depth and riprap banks; and a severe channel alteration because of the straight, trapezoid channel alignment. SAR C had a mixed score buffer resulting from the presence of maintained area and a road present within the buffer. SAR F had a a high poor buffer due to the mowing and maintenance; poor in-stream habitat since none of the habitat types were present

5. Based on the Unified Stream Methodology, SARs A, B and D scored a Reach Condition Index (RCI) of 0.52 out of a maximum of 1.5; SAR C scored an RCI of 0.51, and SAR F scored an RCI of 0.57. Based on the current proposed project of the construction of culverted crossings,

the Unified Stream Methodology's Impact Factor (IF) score for SARs A, B and F was determined to be a Severe (which is equal to a 1) and SARs C and D were determined to be Moderate (which is equal to 0.5). This IF score, when combined with the RCI and linear feet of impact, results in a need to mitigate for 136 debits.



Jayson M. Hudson
Regulatory Project Manager
Policy Analysis Section

**STP Unit 3 & 4 -Culvert Placement and Barge Slip Expansion
Proposed Project Impacts
SWG-2007-786**

Block 22

Culvert Impacts

Culvert	Impact Type	JD Width of Stream (ft) ¹	Width of Proposed Culvert (ft) ²	Existing Culvert Linear (ft) ³	Total Stream Impact (sq ft) ⁴	New Impact Linear (ft) ⁵	New Stream Impact (sq ft) ⁶	Amount of Dredge/Fill Material (cu yd) ⁷
A	New	21	80	0	1,680	80	1,680	62
B	New	6	80	0	480	80	480	17
C	Replace	13	80	75	1,040	5	65	38
D	Replace	20	80	60	1,600	20	400	59
E	Replace	11	80	80	880	0	0	32
F	New	21	80	0	1,680	80	1,680	62
G	None	0	80	0	0	0	0	
					7,360 ~0.17 ac	265	4,305 ~0.10 ac	

¹ Width of Bed and Bank as measured in stream (jurisdictional width) - measured in field

² All road beds expected to be 80 ft wide - engineering design

³ Linear ft of existing culverts (old impacts) - measured in field

⁴ Total stream area impacted by culverts (old and new)

⁵ Linear ft of new culverts in JD areas (new impacts)

⁶ Surface area of new culverts in JD areas (total new impacts)

⁷ Cubic yards is based on a 1 ft excavation

Barge Slip Impacts

Existing Length (ft)	Existing Width (ft)	Additional Width (ft)	New Width (ft)	Total Barge Slip Area (sq ft)	Barge Slip New Impacts (sq ft)	Amount of Dredge/Fill Material (cu yd)
500	60	20	80	40,000	10,000	11,851
200	60	20	80	16,000	4,000	8,296
				56,000 ~1.29 ac	14,000 ~0.32 ac	

Stream Assessment Form (Form 1)

COPY

Unified Stream Methodology for use in Virginia

For use in Wadeable channels classified as Intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
SWG-2007-00764	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	A	80	1

Name(s) of Evaluator(s)	Stream Name and Information
Jayson M Hudson	Unnamed Relatively Permanent Water

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Channel Condition	Conditional Category					CI
	Optimal	Suboptimal	Marginal	Poor	Severe	
 Very little incision or active erosion; 90-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	 Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	 Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which	 Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	 vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	1.0	
Score	3	2.4	2	1.6	1	1.0

NOTES>> Cobble riprap along entirety of bank. Channel excavated, straightened, and uniform. Flow contained within banks and below surrounding root zone

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Riparian Buffers	Conditional Category						NOTES>> Actively mowed and maintained on both sides. Cobble riprap along much of the buffer.
	Optimal	Suboptimal		Marginal	Poor		
Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
Condition Scores	1.5	High 1.2	Low 1.1	High 0.85	Low 0.75	High 0.6	Low 0.5

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Right Bank	% Riparian Area >	Score >					% Riparian Area >	Score >
	100%	0.6				100%		
CI = (Sum % RA * Scores * 0.01) / 2 Rt Bank CI > 0.60 CI Lt Bank CI > 0.60 0.60								

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embedment; shade; undercut banks; root mats; SAV; riffle/pool complexes, stable features.

Instream Habitat/ Available Cover	Conditional Category				NOTES>> No shade, woody debris, root mats, riffle/pool complexes present. Some SAV.
	Optimal	Suboptimal	Marginal	Poor	
Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.		CI
Score	1.5	1.2	0.9	0.5	0.50

Stream Impact Assessment Form Page 2

COPY

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
SWG-2007-00764	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	A	80	1

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>>Channel is engineered drainage ditch with a straight channel with cobble riprap on both sides

Channel Alteration	Conditional Category						
	Negligible	Minor	Moderate	Severe			
Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

THE REACH CONDITION INDEX (RCI) >>	0.52
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	42
CR = RCI X LF X IF	

INSERT PHOTOS:
No pictures available due to camera malfunction.

DESCRIBE PROPOSED IMPACT:

The applicant proposes to place an culvert in 80 linear feet of stream. This resulted in an impact factor of 1.0

Stream Impact Assessment Form Page 2

COPY

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
SWG-2007-00766	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	B	80	1

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>>Channel is engineered drainage ditch with a straight channel

Channel Alteration	Conditional Category						
	Negligible	Minor		Moderate	Severe		
	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not		Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >> **0.52**

RCI= (Sum of all Ci's)/5

COMPENSATION REQUIREMENT (CR) >> **42**

CR = RCI X LF X IF

INSERT PHOTOS:

No pictures available due to camera malfunction

DESCRIBE PROPOSED IMPACT:

The applicant proposes to place an culvert in 80 linear feet of stream. This resulted in an impact factor of 1.0

Stream Impact Assessment Form Page 2

COPY

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
SWG-2007-00799	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	C	5	0.5
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock.								NOTES>> Channel is engineered drainage ditch with a straight channel with cobble riprap on both sides
Channel Alteration	Conditional Category							
	Negligible	Minor	Moderate		Severe			
	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not been measured.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not been measured.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50	

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The Ci's and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.51
RCI = (Sum of all Ci's)/5	
COMPENSATION REQUIREMENT (CR) >>	1
CR = RCI X LF X IF	

INSERT PHOTOS:

No pictures available due to camera malfunction

DESCRIBE PROPOSED IMPACT:

The applicant proposes to remove the existing 75-foot culvert and replace it with an 80-foot culvert, resulting in an additional 5 feet of culvert. This resulting in an impact factor score of 0.5 due to its moderate affect on the channel.

Stream Assessment Form (Form 1)

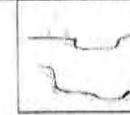
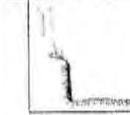
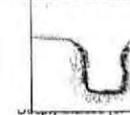
COPY

Unified Stream Methodology for use in Virginia

For use in Wadeable channels classified as Intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
SWG-2007-00799	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	D	20	0.5
Name(s) of Evaluator(s)		Stream Name and Information						
Jayson M Hudson		Unnamed Relatively Permanent Water						

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Channel Condition	Conditional Category					Score
	Optimal	Suboptimal	Marginal	Poor	Severe	
						
	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	
	3	2.4	2	1.6	1	1.0

NOTES>> Channel excavated, straightened, and uniform. Flow contained within banks and below surrounding root zone

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Riparian Buffers	Conditional Category						Condition Scores	NOTES>> Actively mowed and maintained on both sides.
	Optimal	Suboptimal	Marginal	High Marginal	Low Marginal	High Poor		
	Tree stratum (dbh > 3 inches) present, with > 80% tree canopy cover. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-fill cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
	1.5	High	Low	High	Low	High	Low	
				0.85	0.75	0.6	0.5	

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Right Bank	% Riparian Area >	100%							100%
	Score >	0.6							
Left Bank	% Riparian Area >	100%							100%
	Score >	0.6							

CI = (Sum % RA * Scores) / 2
 Rt Bank CI > 0.60
 Lt Bank CI > 0.60

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddedness; shade; undercut banks; root mats; SAV; riffle/pool complexes; stable features.

Instream Habitat/ Available Cover	Conditional Category				Score	NOTES>> No shade, woody debris, root mats, riffle/pool complexes present. Some SAV.
	Optimal	Suboptimal	Marginal	Poor		
	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.		
	1.5	1.2	0.9	0.5		

Stream Impact Assessment Form Page 2

COPY

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
SWG-2007-00799	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	D	20	0.5
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							NOTES>> Channel is engineered drainage ditch with a straight channel with cobble riprap on both sides	
Conditional Category								
Channel Alteration	Negligible	Minor		Moderate		Severe		
Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50	

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.52
<small>RCI = (Sum of all CI's)/5</small>	
COMPENSATION REQUIREMENT (CR) >>	5
<small>CR = RCI X LF X IF</small>	

INSERT PHOTOS:

No pictures available due to camera malfunction.

DESCRIBE PROPOSED IMPACT:

The applicant proposes to remove the existing 60-foot culvert and replace it with an 80-foot culvert, resulting in an additional 5 feet of culvert. This resulting in an impact factor score of 0.5 due to its moderate affect on the channel.

Stream Assessment Form (Form 1)

COPY

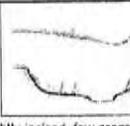
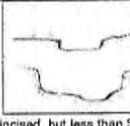
Unified Stream Methodology for use in Virginia

For use in Wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
WG-2007-007	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	F	80	1

Name(s) of Evaluator(s)	Stream Name and Information
Jayson M Hudson	Unnamed Relatively Permanent Water

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	Severe	
Channel Condition						
	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 80-90% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	Vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.0

NOTES>> Channel excavated, straightened, and uniform. Flow contained within banks and below surrounding root zone

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category														
	Optimal		Suboptimal		Marginal		Poor								
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover. Wetlands located within the riparian areas.		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and a maintained understory. Recent culover (dense vegetation).		High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.		Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water, if present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.		High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		NOTES>> Buffer is non-maintained scrub/shrub with dense herbaceous layer
Condition Scores	1.5		1.2 1.1		0.85 0.75		0.6 0.5								

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Right Bank	% Riparian Area >	100%						100%	
	Score >	0.85							
									CI= (Sum % RA * Scores*0.01)2
Left Bank	% Riparian Area >	100%						100%	Rt Bank CI > 0.85
	Score >	0.85							Lt Bank CI > 0.85

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddedness; shade; undercut banks; root mats; SAV; riffle/pool complexes, stable features.

	Conditional Category				
	Optimal	Suboptimal	Marginal	Poor	
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	NOTES>> No shade, woody debris, root mats, riffle/pool complexes present. Some SAV.
Score	1.5	1.2	0.9	0.5	

CI 0.50

Stream Impact Assessment Form Page 2

COPY

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
WG-2007-007	South Texas Project Units 3&4	STP	Riverine	12	14 July 10	F	80	1
4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock								NOTES>>Channel is engineered drainage ditch with a straight channel with cobble riprap on both sides
Conditional Category								
Channel Alteration	Negligible	Minor		Moderate		Severe		
	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.		
	SCORE	1.5	1.3	1.1	0.9	0.7	0.5	

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The Cls and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

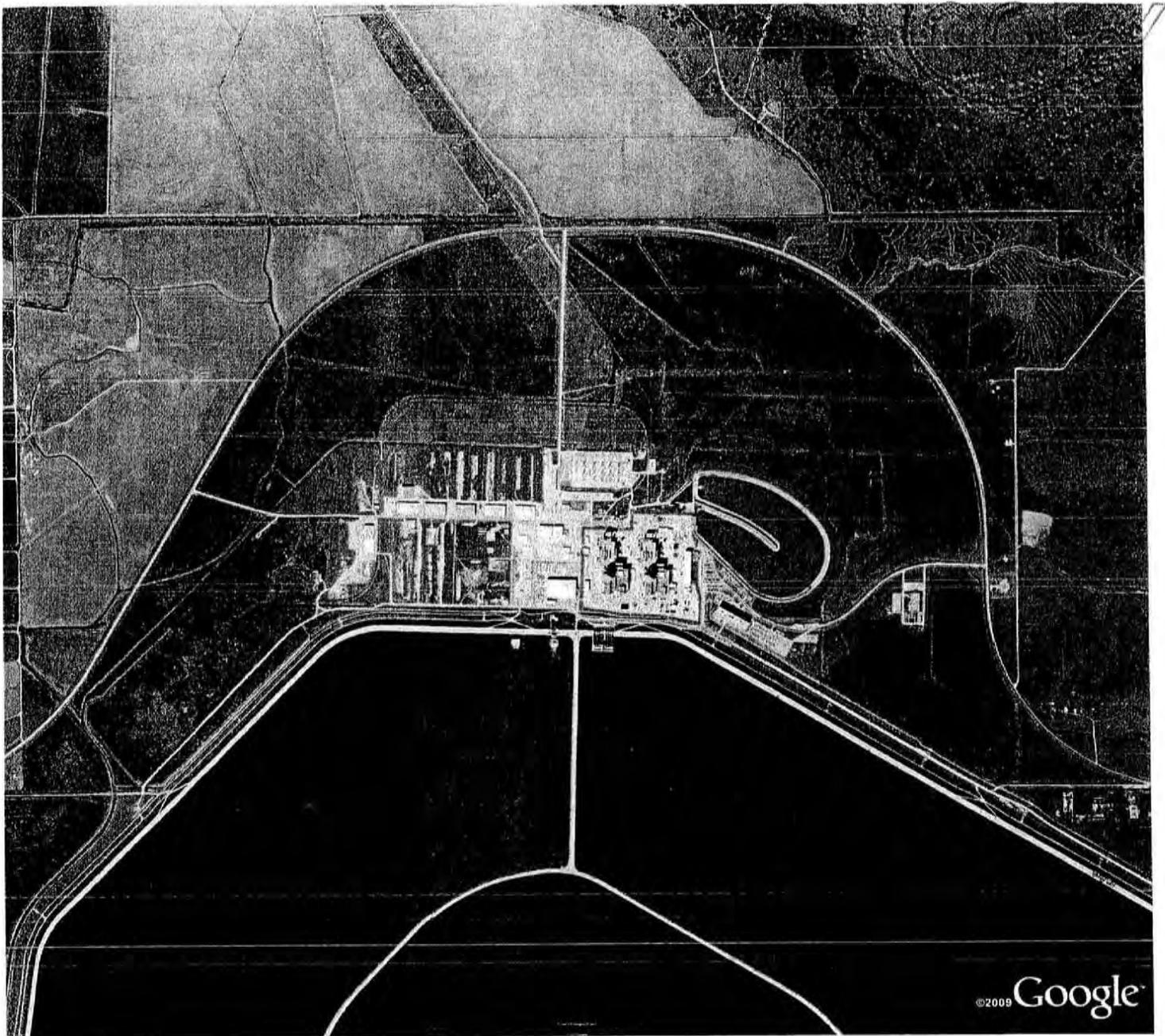
THE REACH CONDITION INDEX (RCI) >>	0.57
RCI= (Sum of all Cl's)/5	
COMPENSATION REQUIREMENT (CR) >>	46
CR = RCI X LF X IF	

INSERT PHOTOS:

No pictures available due to camera malfunction

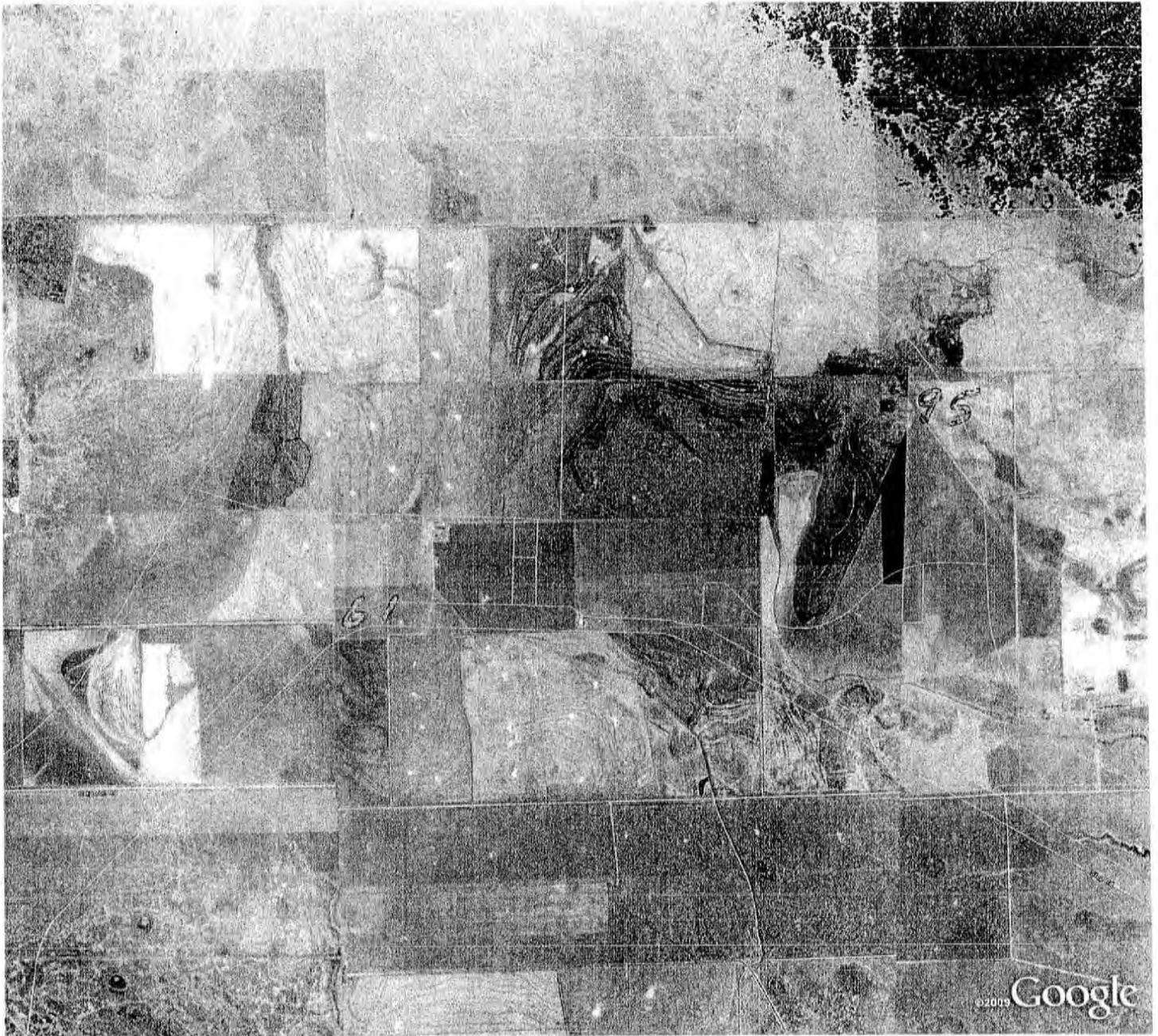
DESCRIBE PROPOSED IMPACT:

The applicant proposes to place an covert in 80 linear feet of stream. This resulted in an impact factor of 1.0



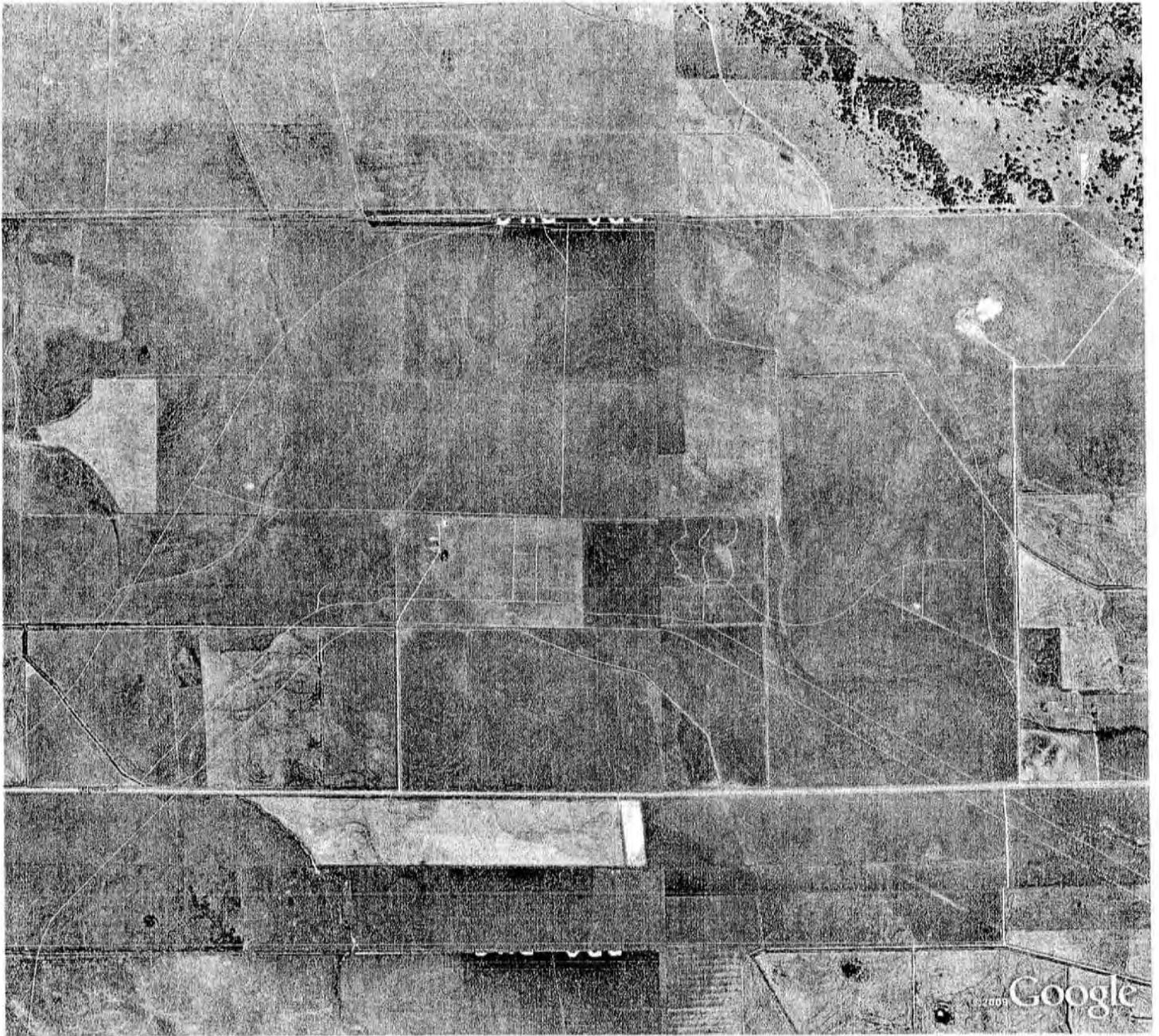
January 2009

COPY



1943

COPY



1965

COPY

Attachment 3

MCMB Mitigation Credit Unit Availability



MILL CREEK MITIGATION BANK

September 21, 2010

Russell W. Kiesling, Sr., PMP
Environmental Lead
Regulatory Affairs
STPNOC - Units 3 & 4
4000 Avenue F, Suite A
Bay City, Texas 77414

**Mitigation Credit Unit Availability
Mill Creek Mitigation Bank
Austin County, Texas**

Dear Mr. Kiesling:

The Mill Creek Mitigation Bank (MCMB) credit ledger as of September 21, 2010 has a unit balance of 19.0 Physical, 21.8 Biological, 14.2 Chemical, and 520 stream credit units remaining for use to mitigate for wetland and stream impacts on U.S. Army Corps of Engineers authorized projects.

This letter conveys no commitment to sell functional credit units at any price, nor reserve any amount of functional credit units.

We appreciate your interest in the Mill Creek Mitigation Bank and hope we may be of service to you. If you have any questions, please do not hesitate to contact me at (281) 795-4493.

Sincerely,

Larry J. Gremminger

Larry J. Gremminger
Mill Creek Mitigation Bank

Attachment 4

MCMB Mitigation Banking Instrument

MAY 14 2008

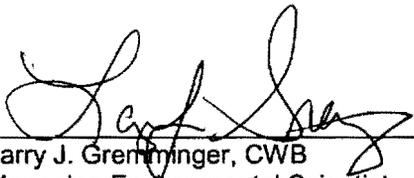
MITIGATION BANKING INSTRUMENT
WETLANDS CONSERVATION PARTNERS, LTD
MILL CREEK MITIGATION BANK
AUSTIN COUNTY, TEXAS

Prepared for:

WETLANDS CONSERVATION PARTNERS, LTD
P.O. Box 339
Fayetteville, Texas 78940

Prepared by:

GREMMINGER AND ASSOCIATES, INC.
226 South Live Oak Street
Bellville, Texas 77418



Larry J. Gremminger, CWB
Managing Environmental Scientist

May 8, 2008

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1.0	INTRODUCTION	1
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1.0 INTRODUCTION

Section 404 of the Clean Water Act (CWA) (33 USC 1344 et seq.) and Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into Waters of the United States, including wetlands, and for activities in, or affecting, navigable Waters of the United States. The Department of the Army (DA), through the U.S. Army Corps of Engineers (USACE) Regulatory Program, makes decisions to issue or deny permits based on a public interest review (33 CFR Parts 320–331), and for activities subject to regulation under Section 404, on compliance with the U.S. Environmental Protection Agency's (EPA) Guidelines for the Specification of Disposal Sites for Dredged and Fill Material (40 CFR Part 230), known as the Section 404(b)(1) guidelines.

The USACE requires mitigation for adverse impacts to Waters of the United States, including wetlands, associated with activities regulated under Sections 404 and 10 that are likely to occur and that would be of importance to the human or aquatic environment. The Council on Environmental Quality (CEQ) has defined mitigation to include avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. The 404(b)(1) guidelines provide tools to evaluate impacts to the aquatic ecosystem and measures that can be taken to minimize those impacts. For those impacts that remain after all appropriate steps to avoid and minimize adverse impacts have been taken, appropriate and practicable compensatory mitigation is required to offset those remaining unavoidable adverse impacts.

Guidance pertaining to the type and extent of mitigation that may be required by the USACE is provided in the February 6, 1990, "Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the CWA 404(b)(1) Guidelines," and USACE Regulatory Guidance Letter No. 02-2 on "Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899" dated December 24, 2002. The 1990 mitigation memorandum of agreement (MOA) and the regulatory guidance letter also emphasize the importance of a national goal to achieve an overall no net loss of the nation's remaining wetlands base. The regulatory guidance letter applies to all compensatory mitigation proposals associated with permit applications submitted for approval after December 24, 2002. Regulatory Guidance Letter 02-2 guides USACE District to use watershed and ecosystem approaches when determining compensatory mitigation requirements; consider the resource needs of the watersheds where the impacts will occur; and consider the resource needs of neighboring watersheds.

Compensatory mitigation includes restoring, enhancing, creating, and preserving the aquatic system functions that would be lost or impaired due to a USACE-authorized activity. Compensatory mitigation may be implemented to offset the adverse impacts of one or more USACE-authorized projects within a single consolidated mitigation project. Consolidated mitigation projects may result in greater overall environmental benefit than those achieved with numerous small, individual mitigation projects and are usually more cost-effective to implement.

The 1990 mitigation MOA noted without providing further guidance that mitigation banking may be an acceptable form of compensatory mitigation under certain conditions. On November 28, 1995, the USACE issued detailed guidance, "Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks," that details how mitigation banks can be used to satisfy the mitigation requirements of the 404(b)(1) guidelines.

Mitigation banking is the restoration, enhancement, creation, and, in exceptional circumstances, preservation undertaken to compensate in advance for adverse impacts to the aquatic ecosystem. The bank Sponsor(s) typically fund the establishment of the bank in anticipation of recouping that investment by selling units, in the bank to provide a means for USACE permittees to offset adverse project impacts to the aquatic ecosystem. Mitigation banking may be appropriate when compensatory mitigation cannot be practicably achieved at the impact site or would not be as environmentally beneficial. The USACE and other federal agencies recognize the potential benefits of mitigation banking to the aquatic ecosystem, permit applicants under Section 404 or Section 10, regulatory and natural resource agencies, and the general public.

2.0 LEGAL AUTHORITY

A mitigation bank is established in accordance with the following federal and state statutes, regulations, guidelines, and policies:

- Clean Water Act (33 USC 1251 et seq.);
- Rivers and Harbors Act of 1899 (33 USC 401 et seq.);
- Regulatory Programs of the U.S. Army Corps of Engineers (33 CFR Parts 320-331);
- Environmental Protection Agency; Guidelines for the Specification of Disposal Sites for Dredged and Fill Material (404(b)(1) Guidelines, 40 CFR Part 230);
- Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (February 6, 1990);
- Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (November 28, 1995);
- United States Army Corps of Engineers Regulatory Guidance Letter No. 02-2 on "Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899" (December 24, 2002);
- National Environmental Policy Act (42 USC 4321 et seq.);
- Council on Environmental Quality Procedures for Implementing the National Environmental Policy Act (40 CFR Part 1500-1508);
- Executive Order 11990 (Protection of Wetlands);
- Fish and Wildlife Coordination Act (16 USC 4321 et seq.);
- Fish and Wildlife Service Mitigation Policy (46 FR 7644-7663, 1981);
- Endangered Species Act (16 USC 1531 et seq.);
- National Historic Preservation Act, as amended (16 USC 470a, et seq.);
- Texas Parks and Wildlife Department Mitigation Policy;
- Article 6674e, V.T.C.S.;
- Article 6674w-3, V.T.C.S.;
- Title 43 Texas Administrative Code, Section 11.80-11.90; and
- Federal Final Rules for Compensatory Mitigation for Losses of Aquatic Resources (April 10, 2008)

Nothing in this mitigation banking agreement shall be construed as altering the requirements and agency responsibilities as specified in existing law, regulation, and policy.

3.0 SCOPE OF AGREEMENT

This Mitigation Banking Instrument (MBI) upon execution shall serve as the agreement authorizing Wetlands Conservation Partners, LTD (Sponsor) to establish and operate a mitigation bank to be known as the Mill Creek Mitigation Bank (MCMB) as a single bank with two land units; one unit of 89.7 acres located approximately 8 miles southwest of the town of Brenham, and one unit of 98.9 acres located approximately 7.5 miles northwest of the town of Bellville, both in Austin County, Texas (Figures 1, 2 and 3 in Illustrations). For the purposes of this agreement, "Sponsor" shall mean Wetlands Conservation Partners, LTD, or any subsequent sponsor (successor) of the MCMB.

This document was prepared in accordance with the Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (November 28, 1995 Federal Register Vol. 60, No. 228, pp. 58605-58614).

Under this agreement, the sponsor shall:

- Implement and maintain the MCMB as specified in this MBI;
- Perpetually protect the entire 188.6 (89.7 + 98.9) acres as mitigation area through a recorded conservation easement;
- Maintain accounting records on the MCMB;
- Achieve all performance standards outlined in the MBI; and
- Monitor the MCMB property for ecological sustainability and conduct any required remedial activities.

The following agencies participate in the development of this MBI as members of the Mitigation Bank Review Team (MBRT):

- U.S. Army Corps of Engineers, Galveston District (USACE);
- U.S. Fish and Wildlife Service, Clear Lake, Texas Field Office (USFWS);
- U.S. Environmental Protection Agency, Region 6 (EPA);
- Texas Parks and Wildlife Department (TPWD);
- Texas Commission on Environmental Quality (TCEQ); and
- Railroad Commission of Texas (RRC).

The USACE serves as chair of the MBRT and is responsible for making final decisions regarding terms and conditions of the MBI where consensus among the MBRT members cannot otherwise be reached within a reasonable time frame. In addition, the State of Texas retains the authority to require the

— conditions necessary to satisfy Section 401 water quality certification requirements of Department of the Army permits.

4.0 PURPOSE AND GOALS OF THE MITIGATION BANK

The purpose of the MCMB is to create, restore, enhance, preserve, protect, and maintain 188.6 acres of Oak-Elm-Ash bottomland forested riparian wetlands and to restore a closed-canopy forested wetland ecosystem, and provide a source of off-site compensatory mitigation for unavoidable USACE authorized adverse impacts to wetlands and other waters of the United States that would occur within the MCMB's service area resulting from USACE authorized activities under Section 404 or 10. The goals of the MCMB are to:

1. Provide for the replacement of the chemical, physical, and biological functions of wetlands and other aquatic resources that are lost or degraded as a result of unavoidable USACE authorized impacts.
2. Provide USACE permit applicants greater flexibility in compensating for unavoidable adverse impacts to the aquatic ecosystem after appropriate and practicable measures have been taken to avoid and minimize project related impacts on-site, and after on, or near-site, practicable compensation has been conducted or shown not to be in the best interest of the environment, especially when those impacts would be relatively minor.
3. Provide more extensive, higher quality, and more cost effective enhancement and protection of wetlands and other aquatic resources than that typically achieved by other forms of compensatory mitigation for activities that have minor adverse impact on the aquatic ecosystem.
4. Create, restore, enhance, preserve, protect, and maintain 188.6 acres of highly functional Oak-Elm-Ash forested wetlands to produce a closed-canopy forested wetland ecosystem indigenous to the middle to lower Brazos River basin. This dominant forest type to be restored or enhanced to develop as a "closed" to "partially open" canopy layer dominated by water oak (*Quercus nigra*), overcup oak (*Quercus lyrata*), bottomland post oak (*Quercus similis*), water hickory (*Carya aquatica*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), cedar elm (*Ulmus crassifolia*), sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), mockernut hickory (*Carya tomentosa*), and bald cypress (*Taxodium distichum*). Dominant mid-story species should consist of juveniles of the overstory species, yaupon (*Ilex vomitoria*), deciduous holly (*Ilex decidua*), possumhaw (*Viburnum nudum*), Virginia sweetspire (*Itea virginica*), buttonbush (*Cephalanthus occidentalis*), and hawthorn (*Crataegus* spp.) in varying densities. This ecosystem will provide a high quality, native riparian and bottomland forested wetland habitat along Mill Creek and Buffalo Creek and enhance the adjacent and downstream self-sustaining forested wetland habitats.

5.0 PROPERTY LOCATION AND BASELINE CONDITIONS

Development of the proposed MCMB will occur on two tracts of land (Units). One tract of 89.7 acres (Shelby Unit) located southwest of Brenham, and one tract of 98.9 (Kenney Unit) located northwest of Bellville. Both units are located in Austin County, Texas (Figures 4 and 5 in Illustrations).

5.1 Shelby Unit

The Shelby Unit will be composed of 89.7 acres adjacent to and including 4,700 foot (ft) of the West Fork of Mill Creek. A total of 66.6 acres may be characterized as Ash-Elm forested wetland; 7.0 acres may be characterized as Elm-Ash-Mixed scrub-herbaceous wetland; 10.0 acres elm scrubland proposed for hydrology enhancement and replanting; 2.7 acres of non-wetland riparian forest, and 3.4 acre of exempt land taken by utility rights-of-way. All is located immediately adjacent to and within the floodplain of the West Fork of Mill Creek. The majority of the proposed mitigation acreage has numerous topographic dips, sloughs, and oxbow lakes.

The proposed banking unit lands have been classified into three existing habitats (Figure 6):

1. Riparian Forested Wetlands. This habitat possesses a mature overstory and sparse to non-existent shrub understory; exhibits the wetland criteria; is immediately adjacent to a Water of the United States, and is regularly flooded at various depths for short time (several days) durations.
2. Bottomland Forested Wetlands. This habitat exhibits the wetland criteria, commencing outside of the immediate Riparian zone and extends further in distance from the perennial water; possesses a mature overstory with little to no shrub understory; and is regularly flooded at various depths for extended time (several weeks) durations.
3. Mixed Scrub-Herbaceous Wetlands. This habitat possesses no overstory; has an intermediate to sparse shrub layer and dense herbaceous layer; exhibits the wetland criteria; occurs adjacent to a Water of the United States; and is regularly flooded at various depths for short time durations.

These lands occur as part of the Mill Creek corridor and adjacent wetlands. The area receives a total annual precipitation of approximately 42 inches.

The Natural Resource Conservation Service, "Soil Survey of Austin County, Texas" lists the Trinity Clay (Tr), frequently flooded, as the series occurring within the subject property proposed for inclusion within the MCMB (Figure 7).

- Trinity Clay; Frequently Flooded: The United States Department of Agriculture; Natural Resource Conservation Service's "Soil Survey of Austin and Waller Counties, Texas" describes this soil as poorly drained, very slowly permeable soil formed in alkaline clayey alluvium. The A horizon is

described as having a hue of 10YR, 2.5Y, or 5Y with values of 2 to 3 and chroma of 1. The NRCS locally and nationally lists this soil as a hydric series.

5.2 Wetland Determinations and Delineation

A routine wetland determination and delineation of the site was conducted in accordance with the USACE 1987 Wetlands Delineation Manual (Technical Report: Y-87-1), on February 15, 2007. The potential delineation boundary between wetlands and non-wetlands was initially determined by identifying the locations of the bottomland floodplain/elevated slope interface and the transition zones between hydrophytic vegetation and non-wetland vegetation. The initial visual evaluation was refined by sampling for the dominance of hydrophytic vegetation, evidence of hydrology, and presence of hydric soils. Sampled soils within the property's boundary meeting the hydric soil criteria contained a clay having 10YR 2/1 Munsell coloration and are positive for the field alpha-alpha-dipyridil test. Once a point was established containing all three criteria indicative of a wetland, a GPS coordinate was recorded and utilized to accurately plot the determined wetland boundary.

Table 5.2 summarizes the existing habitats and extent of jurisdictional Waters of the U.S. for the MCMB Shelby Unit.

Table 5.2
Summary of Existing Conditions for the Shelby Unit

Habitat Type	Waters of U.S. (acres)	Non-Waters of U.S. (acres)	Total
Utility Easements	3.4	0	3.4
Riparian and Bottomland Forested Wetland	66.6	0	66.6
Scrub-Herbaceous Wetland	7.0	0	7.0
Scrub-Herbaceous Non-Wetland		10	10.0
Riparian Scrub-Forest		2.7	2.7
Total	77	15.4	89.7

All of the wetlands are Waters of the United States (33 CFR 328) because they are adjacent to Mill Creek, which is a perennial tributary to the Brazos River, a navigable water of the U.S.

5.3 Shelby Unit Existing Habitat Characterization

5.3.1 Riparian Forest

The riparian forest habitat is comprised of medium density, mature tree species occurring adjacent to Mill Creek. Overstory species consist of green ash (*Fraxinus pennsylvanica*), cedar elm (*Ulmus crassifolia*), black willow (*Salix nigra*), and hackberry (*Celtis laevigata*), with individual occurrences of pecan (*Carya*

illinoensis) and bottomland post oak (*Q. similis*). The midstory, where it exists, is comprised of smaller individuals of the canopy species. The shrub and herbaceous layer contains occasional occurrences of deciduous holly (*Ilex decidua*), dwarf palmetto (*Sabal minor*), and vines of the genera *Smilax*, *Vitis*, and *Berchemia*.

5.3.2 Bottomland Forest

The bottomland forests are frequently flooded and experience prolonged inundation by floodwaters during flood events. The vegetative species composition of this area is dominated by mature bottomland tree species with a closed overstory typically comprised of mature cedar elm, and green ash, with isolated small stands of mature hackberry and occasional individuals of osage-orange (*Maclura pomifera*). The midstory shrub/scrub canopy layer, where present, is comprised of juvenile overstory species with isolated individuals of deciduous holly. Little or no herbaceous understory vegetation is present except for occurrences of dwarf palmetto, Indian sideoats (*Chasmanthium latifolium*), and cat claw greenbriar (*Smilax bona-nox*).

5.3.3 Scrub-Herbaceous

The scrub-herbaceous habitat represents a portion of the proposed unit that was historically cleared (evidenced in older aerial photography) and is now through plant succession slowly transitioning to a wooded habitat. No overstory height individuals occur across this acreage. Mid-canopy to shrub level species includes hackberry, cedar elm, deciduous holly, osage-orange, and green ash. Herbaceous species include panic grasses (*Panicum* spp.), Vasey grass (*Paspalum urvillei*), giant ragweed (*Ambrosia trifida*), sumpweed (*Iva annua*), and individuals of the genera *Hypericum*. The non-wetland portion listed for inclusion as a creation effort lack recent evidence of hydrology to support a wetland determination.

5.4 Hydrology

Mill Creek is perennial water with an extensive contributing watershed. Hydrology at the Shelby Unit is established by its location within the 100 year floodplain (Figure 8) and evidence of sustained hydrology. Principal evidence of hydrology is exhibited by numerous woody debris drifts around the bases of trees and the visually apparent permanent waterline on the trunks of trees. Additional hydrology is provided by direct receipt of precipitation and overland flows from drainages discharging to these lands.

Numerous dips, sloughs, and oxbow lakes of varying sizes occur across the proposed unit.

Flow and gauge records (1999-2003 reviewed) maintained by the U.S. Geologic Survey on Mill Creek reveal that during normal climatic periods flood events occur on average eight (8) times per year, with a

flood duration varying from 2 to 5 days. Complete surface inundation of the proposed mitigation lands occurred in January, March, and June of 2007 for over a 48 hour period with long duration inundation of oxbows and sloughs continuing for additional weeks to months.

5.5 Kenney Unit

The Kenney Unit will be composed of 98.9 acres within the floodplain of Mill Creek and Buffalo Creek and will include 1,915 ft of Buffalo Creek channel as stream channel stabilization and riparian restoration. A total of 28.2 acres may be characterized as Ash-Elm forested wetlands; 51.8 acres may be characterized as herbaceous wetland; 3.8 acres is an existing gas well, pipeline, and access road, and 15.1 acres is included as a riparian zone adjacent to both sides of Buffalo Creek and 1,915 ft of the Buffalo Creek channel. The portion of the property having the Ash-Elm forested wetland habitat includes extensive deep sloughs that moderate in depth and occurrence proceeding east across the herbaceous wetland pasture to the confluence of Mill and Buffalo Creeks.

The proposed banking unit lands have been classified into three existing habitats (Figures 9 and 10):

1. **Bottomland Forested Wetlands.** This habitat exhibits the wetland criteria, possesses a mature overstory and little to no shrub understory, and is regularly flooded at various depths for moderate time (1- 2 weeks) durations.
2. **Herbaceous Wetlands.** This habitat possesses a dense herbaceous layer, exhibits the wetland criteria and is regularly flooded at various depths for moderate time (1- 2 weeks) durations.
3. **Stream Riparian Zone.** At some locations on Buffalo Creek this habitat possesses a mature overstory with a moderate mid-canopy and shrub in a narrow strip immediately adjacent to the high banks of Buffalo Creek, and no woody vegetation for the remaining lengths of its channel. This habitat is annually flooded at various depths for short time (1 – 5 day) durations.

These lands occur as part of the Mill Creek and Buffalo Creek corridors and adjacent wetlands. The area receives a total annual precipitation of approximately 42 inches.

The Natural Resource Conservation Service lists the Trinity Clay, frequently flooded, as the only soil series occurring within the section of the property proposed for inclusion within the MCMB (Figure 11).

5.6 Wetland Determination and Delineation

Fieldwork for a routine wetland delineation of Kenney Unit was conducted, in accordance with the USACE 1987 Wetlands Delineation Manual, in August of 2006. The potential delineation boundary between wetlands and uplands was initially determined by identifying increasing slopes and transition zones occurring between hydrophytic vegetation and upland vegetation. The initial visual evaluation was refined by sampling for the dominance of hydrophytic vegetation, evidence of hydrology, and hydric soils. Soils

sampled within the property's boundary meeting the hydric soil criteria are a clay with 10YR 2/1 coloration for all of the first 12 inches of the soil profile and positive for the field alpha-alpha-dipyridil test. The area exhibits drainage patterns, drift lines of debris, and has visually apparent water marks indicating the height of long duration flood water levels.

Once a point was established containing all three criteria indicative of a wetland, GPS coordinates were recorded and utilized to accurately plot the determined wetland boundary.

Table 5.6.1 summarizes the existing habitats and extent of wetlands on the Kenney Unit.

Table 5.6.1
Summary of Existing Conditions for the Kenney Unit

Habitat Type	Waters of the U.S. (Acres)	Non-Waters of the U.S. (Acres)	Total
Forested Wetland	28.2	0	28.2
Emergent Persistent Wetland	51.8	0	51.8
Riparian Woods-Herbaceous	0	2.9	2.9
Riparian Pasture (Non-wetland)	0	12.2	12.2
Exempt Land (gas well, pipe)	3.8	0	3.8
Total	83.8	15.1	98.9

All of the wetlands are Waters of the United States (33 CFR 328) because they are adjacent to Mill and Buffalo Creeks, which are perennial tributaries to the Brazos River, a navigable water of the U.S.

5.7 Kenney Unit Existing Habitat Characterization

5.7.1 Ash Dominant Forested Wetland

The ash dominant forested wetland habitat occupies the northwest portion of the Kenney Unit. The existing vegetation consists of mature and immature green ash and cedar elm, with isolated occurrences of osage-orange. The understory has some juvenile individuals of elm, ash, and dwarf palmetto. The herbaceous layer has an even density of foxtail (*Alopecurus myosuroides*), with occasional poison-ivy (*Toxicodendron radicans*), and trumpet creeper (*Campsis radicans*).

5.7.2 Herbaceous Wetland

The herbaceous wetland habitat occurs in the central and east central portions of the unit. The notable vegetative species of occurrence include Hooker's eryngo (*Eryngium hookeri*), southern annual saltmarsh

aster (*Symphotrichum divaricatum*), frog fruit (*Phyla incisa*), foxtail, sumpweed, goldenrod (*Solidago sempervirens*), smartweed (*Polygonum hydropiperoides*), rattlebush (*Sesbania drummondii*), and several species of the genera *Panicum*.

5.7.3 Riparian Zone and Riparian Wetland

The riparian zone at, and adjacent to, Buffalo Creek exhibits wooded, partially wooded, and non-wooded habitats. Significant footage of the creek has no shrub or trees species and within this footage erosion of the high banks and channel movement is common. The principal vegetative species in the eroded portion of the creek is giant ragweed, goldenrod, and sumpweed. The partially wooded habitat has scattered individuals of American elm and black willow along with the herbaceous species stated before. The wooded habitat has pecan, sycamore, American elm, hackberry, and osage-orange with a mid-canopy and shrub layer of juveniles of these species and yaupon.

5.8 Hydrology

Mill and Buffalo Creeks are perennial waters with extensive contributing watersheds. Hydrology at the Kenney Unit is provided by direct receipt of precipitation, overland flows, and retention of waters from out of bank floods of the two waters. The area exhibits general and deeply incised drainage patterns within the wetlands, drift lines of wood debris, and water marks on tree bases.

Flow and gauge records (1999-2003 reviewed) maintained by the U.S. Geologic Survey on Mill Creek reveal that during normal climatic periods flood events occur on average eight (8) times per year, with a flood duration of 7 to 14 days. Recent documentation of flooding was obtained in January, March, and June of 2007 when all the proposed land for mitigation was underwater for multiple days.

6.0 MITIGATION PLAN

6.1 Shelby Unit Mitigation Objectives

The long-term mitigation objective for the Shelby Unit is to create, restore, enhance, protect, and maintain 83.6 acres of highly functional Oak-Elm-Ash forested wetland ecosystem indigenous to the middle to lower Brazos River basin.

This dominant forest type will be restored or enhanced to develop as a “closed” to “partially open” canopy layer dominated by water oak (*Quercus nigra*), overcup oak (*Quercus lyrata*), chinkapin oak (*Quercus muehlenbergii*), bottomland post oak (*Quercus similis*), bur oak (*Quercus macrocarpa*), water hickory (*Carya aquatica*), cedar elm (*Ulmus crassifolia*), American elm (*Ulmus americana*), pecan (*Carya illinoensis*), and green ash (*Fraxinus pennsylvanica*). Dominant mid-story species should consist of juveniles of the overstory species, hawthorn (*Crataegus spp.*), and American hornbeam (*Carpinus caroliniana*) in varying densities. The dominant understory species should consist of deciduous holly (*Ilex decidua*), possumhaw (*Viburnum nudum*), and Virginia sweetspire (*Itea virginica*) in varying densities. This ecosystem will provide a high quality, native riparian and bottomland forest habitat along Mill Creek and potentially enhance the downstream wetland habitats by re-introduction of a seed source for hard mast species eradicated by over utilization during the early settlement of Texas.

The management of diversification of woody tree and shrub species within the overstory and understory and the increase in large diameter roughage will restore and enhance wetland functional values such as wildlife nesting, foraging and stopover habitat, temporary flood water storage, nutrient cycling, groundwater recharge, sediment retention, filtration of water runoff, and carbon export/sequestration.

6.2 Shelby Unit Treatment and Planting Specifications

To restore and enhance the forested wetland complex that currently has low species diversity and no hard mast species, the Sponsor will cut and replant 30 percent (%) of the existing forested acreage using circular planting plots spaced at regular intervals throughout the entirety of the existing stand and interplant the remaining 70% of the forested acreage. The cut trees and shrubs will be left where they fall to add roughage to the area and diversify microhabitat availability. Trees and shrubs utilized for the reforestation will be bare-root seedlings or container grown saplings, and seeds.

Excepting select and marked individuals of green ash or elm desired to remain for species diversity, the scrub habitat at Shelby will be removed by mechanical mulching and replaced with planted saplings.

The Sponsor will install water retention structures in the slough channels and a water retention levee to increase hydrology.

The Shelby Unit Management Plan and Analysis in Appendix A contains the specifics on species of introduction, planting densities, plant material parameters, locations, and details the retention structures.

6.3 Exempt Lands within the Shelby Unit

A 30-ft wide pipeline easement, and paralleling 75 ft wide powerline easement, totaling 3.4 acres in area, transects the Shelby unit. The Sponsor retains the right to surface use of these lands but as established facilities, the potential exists that future maintenance may be required. Tree and shrub development is not allowed over the top of pipelines in accordance with the U.S. Department of Transportation regulations for pipeline integrity and by industry practice for pipeline inspection and encroachment reviews. Electrical transmission facilities are maintained in similar manner. No credit for this acreage is provided.

The utility corridors will represent a narrow, linear, non-forested area transecting the MCMB. However, the presence of the corridor is not expected to significantly affect the functions of the MCMB. Since the easement is a linear break and serves as a means of entry across the MCMB, monitoring of the pipeline corridor for encroachment of invasive plant species will be included as a routine maintenance activity in the long-term management of the MCMB.

The 2.7 acres of non-wetland riparian Scrub-forest is within the wetland mitigation area but no credit for this acreage is provided.

6.4 Kenney Unit Mitigation Objectives

The long-term mitigation objective for the Kenney Unit is to restore, enhance, protect, and maintain 80.0 acres of highly functional Oak-Elm-Ash forested wetland ecosystem; and to stabilize, restore, enhance, protect and maintain 15.1 acres of the Buffalo Creek channel, banks, and riparian woodlands. Both habitats are indigenous to the middle to lower Brazos River basin. Additionally, the Sponsor proposes to re-fill man-enhanced natural drainages and to install water retention structures to increase the hydrologic retention capacity of the restored bank lands.

This dominant forested wetland type will be restored or enhanced to develop as a “closed” to “partially open” canopy layer dominated by water oak, overcup oak, bur oak, chinkapin oak, bottomland post oak, water hickory, cedar elm, American elm, and green ash. Dominant mid-story species should consist of juveniles of the overstory species, hawthorn (*Crataegus* spp.), and American hornbeam (*Carpinus*

caroliniana) in varying densities. The dominant understory species should consist of yaupon, deciduous holly, possumhaw, and Virginia sweetspire in varying densities.

The dominant riparian forest type and stream stabilization species to be restored or enhanced to develop as a “closed” to “partially open” canopy layer include: water oak, overcup oak, bottomland post oak, sycamore (*Platanus occidentalis*), American elm, eastern cottonwood (*Populus deltoides*), pecan, black willow, and bald cypress. Dominant mid-story species should consist of juveniles of the overstory species, hawthorn, and American hornbeam in varying densities. The dominant understory species should consist of deciduous holly and Virginia sweetspire in varying densities.

This ecosystem and restored lands will provide a high quality, native riparian and bottomland forest habitat along Mill Creek and Buffalo Creek and will enhance the downstream wetland habitats by re-introduction of a seed source for hard mast species eradicated in this portion of the watershed during early historical settlement of the area.

The restoration, diversification, and management of woody tree and shrub species within the overstory and understory will restore and enhance wetland functional values such as: wildlife nesting, foraging and stopover habitat, temporary flood water storage, nutrient cycling, groundwater recharge, sediment retention, filtration of water runoff, and carbon export/sequestration.

6.5 Kenney Unit Treatment and Planting Specifications

To restore and enhance the forested wetland complex that currently has low species diversity and no hard mast species, the Sponsor will cut and replant 30 percent (%) of the existing forested acreage using circular planting plots spaced at regular intervals throughout the entirety of the existing stand, and interplant the remaining 70% of the forested acreage. The cut trees and shrubs will be left where they fall to add roughage to the area and diversify microhabitat availability.

The banks, channel, and riparian zone of Buffalo Creek will be planted with saplings to diversify the species and decrease flow rates within the high banks of the creek and adjacent floodplain.

The Kenney Unit Management Plan and Analysis in Appendix B contains the specifics on species of introduction, planting densities, plant material parameters, locations, and details on the retention structures.

6.6 Exempt Lands within the Kenney Unit

An existing natural gas well and associated flowline, totaling 3.8 acres in area, occurs on and transects a portion of the Kenney Unit. The well workover pad, access, and flowline easement are not incorporated as part of the MCMB area. The Sponsor retains the right to surface use of these lands, but as established facilities, the potential exists that future maintenance may be required. No credit for this acreage is provided.

The flowline corridor will represent a narrow, linear, non-forested area transecting the MCMB. However, the presence of the corridor is not expected to significantly affect the functions of the MCMB. As reforested areas adjacent to the easement mature, the developing tree canopy will extend over the right-of-way, thereby minimizing fragmenting effects of the corridor on the surrounding habitat.

Since the easement is a linear break and serves as a means of entry across the MCMB, monitoring of the pipeline corridor for encroachment of invasive plant species will be included as a routine maintenance activity in the long-term management of the MCMB.

6.7 Invasive Species Control

Invasive and exotic species of concern, or of potential concern, for the MCMB includes Chinese tallow (*Triadica sebiferum*), Deep-rooted sedge (*Cyperus entrerianus*), Old-World bluestems (*Bothriochloa spp.*, and *Dichanthium spp.*), Vasey grass (*Paspalum urvillei*), Dallis grass (*Paspalum dilatatum*), and Bahia grass (*Paspalum notatum*). Additional species may be added to the species control list as new potential threats are identified by state and federal authorities.

Individuals of invasive species will be identified during enhancement and restoration activities and during the performance of routine pedestrian assessments of the banking lands for monitoring and reporting purposes.

Woody species will be controlled through cutting of the stems or trunk at ground level and application of a stump and root herbicide applied directly to the fresh cut. Herbaceous species will be controlled by "spot spray" treatment using a non-listed and approved herbicide for wetland applications. A current example that can be applied in both applications is Rodeo® (glyphosate). Follow-up assessments will be performed to ensure that the treated individuals are killed and that no re-occurrence of individuals from root growth or seed germination has occurred.

Activities to control invasive and exotic species will be a component of the annual monitoring report.

6.8 Long-term Management

The MCMB will be managed in perpetuity as a wetland preserve. Long-term management practices will be implemented in order to maintain the objective of creating, restoring, enhancing, protecting, and maintaining the MCMB as a native, self-sustaining, closed-to-partially-open canopy layer Oak-Elm-Ash forest type dominated by tree species indigenous to the Brazos River Basin. The implementation of the restoration and planting plan, monitoring, and reporting will be supervised by Larry J. Gremminger, CWB; Co-owner and Co-Sponsor of these banking lands. Any modifications to the MBI or development of supplemental plans for the MCMB shall be subject to approval by the USACE after coordination with the MBRT. Following attainment of the performance standards and USACE required monitoring, periodic thorough pedestrian surveys will be made of the MCMB. These surveys will be completed to assess the general ecological health of the MCMB and to identify any problems that may need to be corrected. Survey observations may reflect the need for long-term management practices such as: 1) no action, 2) mechanical vegetation control of nuisance or exotic species, 3) selective herbicide treatments, 4) use of selected prescribed fire to mimic pre-settlement summer burns, 5) planting nurse crops to suppress or compete with nuisance or exotic species, 6) planting native herbaceous vegetation, 7) selective tree harvesting or 8) other resource management activities. The Sponsor will present any proposed substantive changes of the MBI to the MBRT for consideration. However, the Sponsor shall consider the affect of these practices on the long-term ecological objectives of the MCMB prior to including them in any modification to the MBI presented to the MBRT.

Resource management activities (i.e. thinning, salvage, planting, spot herbicide treatments, food plots, etc.) that are part of a MBRT-approved revision to the MBI may be conducted within the MCMB provided the activity would enhance water quality, wildlife habitat, or other forested wetland functions. The Sponsor shall submit proposed written resource management plan activities to the USACE. Such plans may be implemented, if approved by the USACE, after coordination with the MBRT. Any resource management activity shall be preformed in accordance with the following general conditions;

1. Activities shall be designed to contribute to achievement of the objectives of the MCMB.
2. Den and cavity trees shall be preserved.
3. The removal of insect-damaged, diseased or storm-felled trees is generally discouraged; however, these activities may be conducted if included in an MBRT-approved resource management plan.

All structures and facilities within the MCMB, including fences, roads, and trails, shall be properly maintained in perpetuity or for as long as needed to accomplish the goals of the MCMB, achieve the requirements of the MCMB, and assure effective access for future management and monitoring activities. Recreational activities on the part of the property owners and their invitees, such as bird watching,

hunting, fishing, and nature hikes are appropriate if conducted so as to have minimal adverse effects on the aquatic environment. Other recreational activities may be conducted within the MCMB provided the activities are authorized in the MBI or otherwise would not degrade water quality, wildlife habitat, or other forested wetland functions.

As necessary, Best Management Practices will be employed to maintain water quality onsite and ensure the proposed activities will not violate water quality standards. The MCMB is vulnerable to acts of nature such as wildfires, climatic instability, and disease. Occurrence of such an act following attainment of performance standards may require changes to the MCMB, including revision of the MBI, to allow for maintenance activities to offset and counteract negative impacts. Depending upon the circumstances, however, it may be appropriate to let nature take its course, particularly when wetland vegetation is expected to reestablish due to continued existence of seed tree sources, wetland hydrology, hydric soils, and restrictions on incompatible land uses. Decisions on such issues shall be subject to approval by the USACE after coordination with the MBRT.

6.9 Conservation easements

The Sponsor shall dedicate in perpetuity, by an appropriate recorded conservation easements, the 188.6 acre MCMB as a wetland preserve as provided in this MBI. This easement shall be assigned to a third party holder who will be a member in good standing of the Texas Land Trust Council. The MCMB shall not be disturbed, except by those MBRT-approved activities that would not adversely affect the intended purpose, condition, and function of the MCMB. The Sponsor shall record a USACE-approved conservation easement with the Austin County Clerk and provide a copy of the recorded conservation easement to the Regulatory Branch, USACE, Galveston District within 180 calendar days of signing of the by the USACE. The conservation easement shall not be removed or modified without written approval of the USACE after coordination with the MBRT. The conservation easements will contain a clause requiring 60 days notice to the USACE before any change in the recorded document can be allowed. Conveyance of any interest in the property shall be subject to the conservation easement. All conservation easements shall be granted in perpetuity without encumbrances or other reservations, unless such encumbrances or reservations (e.g. retention of hunting, fishing, and hiking privileges by the landowners) will not adversely affect the ecological viability of the MCMB.

6.10 Remedial Actions

In the event that the one or more components of the MCMB does not achieve the performance standards or does not meet other requirements of this MBI, the following sequence of remedial actions shall be taken:

1. Upon discovering that a component of the MCMB does not comply with the requirements of this MBI, including the conservation easement, the Sponsor shall take all appropriate actions to bring that component into compliance as soon as practicable. During the period that a component of the MCMB is out of compliance, the USACE may, after providing written notice and a reasonable opportunity to cure the noncompliance, suspend its approval of the use of MCMB units from that component area as compensatory mitigation for USACE-authorized projects.
2. If remedial actions taken by the Sponsor under the provisions of the preceding paragraph do not result in the failing component of the MCMB complying with the requirements of this MBI despite reasonable efforts, or if it is otherwise determined by the Sponsor that compliance is no longer practicable based on changed circumstances, the Sponsor may submit to the USACE, proposed modifications to the MBI. Any modification of the MBI requires the approval of the USACE, after coordination with the MBRT, before it may be implemented. The Sponsor shall provide written notice to the USACE of the Sponsor's intent to discontinue efforts to achieve the performance standards for, and cease operation of that component of the MCMB. Upon providing such notice, no units may be established for the component of the MCMB that is ceasing operation and the Sponsor shall be released from future maintenance and monitoring obligations for that component. Any units previously established for the component of the MCMB that is ceasing operation shall be removed from MCMB accounts. If there are insufficient unused units in the remaining operational components of the MCMB to replace any units previously withdrawn from the component of the MCMB that is ceasing operation, the Sponsor shall implement other appropriate compensatory mitigation as determined by the USACE, after coordination with the MBRT, as necessary to compensate for withdrawn units for the component of the MCMB that is ceasing operation. In such event, the USACE shall provide written consent to the Sponsor for removal of the conservation easement of this MBI for the affected component of the MCMB after all remedial actions have been completed to the satisfaction of the USACE, after coordination with the MBRT.
3. If the failure of one or more components of the MCMB to comply with the requirements of the MBI adversely affects the ability of the MCMB to meet its goals and objectives or the Sponsor does not make a reasonable effort to bring the MCMB into compliance with the MBI, the USACE, after coordinating with the MBRT, may terminate this MBI and operation of the MCMB after providing the Sponsor with written notice and a reasonable opportunity to resolve the noncompliance. The Sponsor shall implement other appropriate compensatory mitigation, as determined by the USACE, after coordination with the MBRT, as necessary to compensate for withdrawn units representing components of the MCMB that failed to comply with the requirements of the MBI. In such event, the USACE shall provide written consent to the Sponsor for removal of the conservation easement(s) for the affected components of the MCMB after all remedial actions have been completed to the satisfaction of the USACE, after coordination with the MBRT.

7.0 PERFORMANCE STANDARDS

The following standards shall be used to determine the minimum level of success in reaching the ecological goals of the MCMB:

1. The Sponsor shall cease all land uses not consistent with the MBI.
2. The Sponsor shall protect the MCMB from all land uses that are not consistent with the MBI, including livestock grazing and other agricultural practices, in perpetuity. The Sponsor shall repair and upgrade the existing perimeter fence and shall construct new perimeter fencing in areas where fencing does not currently exist to exclude livestock from the MCMB.
3. The Sponsor shall dedicate in perpetuity by an appropriate conservation easement, assigned to a third party non-profit holder, the 89.7 acre Shelby Unit, and 98.9 acre Kenney Unit of the MCMB. The Sponsor shall survey each unit of the MCMB, develop an appropriate conservation easement for the surveyed area, submit the draft conservation easement to the USACE for review and approval, and record the USACE-approved conservation easement with the county clerk. The restriction shall not be removed from the deed or modified without written approval of the USACE. Conveyance of any interest in the property shall be subject to the conservation easement. All conservation easements shall be granted in perpetuity without additional encumbrances or other reservations, unless such encumbrances or reservations (e.g. retention of hunting, fishing, and hiking privileges by the landowners) do not adversely affect the ecological viability of the MCMB. Any areas not encumbered by the conservation easement will not be credited for use in the MCMB.
4. The Sponsor shall protect and maintain the restored and enhanced resources as an Oak-Elm-Ash forested wetlands and forested riparian zone as described in Section 6.0. and the Management Plans in Appendices A and B.
5. The Sponsor shall ensure that all planted areas exhibit the characteristics of a viable Oak-Elm-Ash forested wetlands and forested riparian zone commensurate with the age of the stand and site conditions.
6. The Sponsor shall evaluate these areas using Hydrogeomorphic (HGM) Interim, or other MBRT approved functional value assessment method (see Section 8.0) in accordance with current policies of the USACE Galveston District. Surveys will be conducted in accordance with the monitoring schedule provided.
7. The Sponsor shall ensure seventy percent (70%) survival of planted trees and shrubs for a minimum of five (5) years beyond initial or any necessary supplemental plantings. Planted saplings of the canopy species shall achieve two (2) meters height by the end of the initial five (5) year monitoring period. Trees or shrubs planted by seed shall be established at 450 stems/acre with target of around 109 viable stems per acre after three years. Hydrology enhanced wetlands should achieve the targeted hydrology as specified with conditions in the unit management plans. Invasive species will have no presence in the canopy and mid-canopy and will constitutes no more than 5% of the herbaceous layer cumulatively
8. The Sponsor shall secure an MBRT coordinated and USACE approved financial assurance consistent with the requirements of Section 14.

8.0 MONITORING AND REPORTING

The Sponsor shall monitor and report on progress toward meeting MCMB goals and performance standards and conduct corrective activities to address problems that arise in implementation of the MBI as detailed below:

The Sponsor shall perform a baseline study in January of the first year following MBI approval and shall provide an annual progress report to each member of the MBRT by January 31 of that year and each successive year for the first five (5) years after the MBI is signed by the USACE (2009-2014) or until the minimum success criteria are met, whichever is later. After the performance standards are met, the Sponsor shall provide biennial reports for ten (10) additional years or until the USACE, after coordination with the MBRT, notifies the Sponsor that no additional reports are required.

Each report shall document the following:

1. Results of the baseline or previous year's survey.
2. Sponsor's discussion about, and conclusion on, successful enhancements and likely causes of any setbacks or failures.
3. Recommendations on future management activities for each management area identified in the management plan based on success and failure to date.
4. The general ecological condition of the MCMB, including the general vigor of the vegetation, the vegetative communities developing within the MCMB, the percentage of hard- and soft-mast producing species, and evidence of increased water quality and other wetland associated functional values.
5. Results from a Hydrogeomorphic Assessment (HGM) forested wetland model (or other MBRT preferred method) will be utilized to document the baseline values of the MCMB and change over time as the management plan is enacted. The variables assessed may include at a minimum, habitat connections, floodplain retention ability, overbank flood frequency, soil integrity, surface water connections, tree biomass, and viable species composition.
6. Description of maintenance activities conducted, including invasive species occurrences and controls methods utilized.
7. Summary of management activities and resulting conditions, as well as proposals for any additional contingency or remedial measures to promote the health of the developing wetland habitats.
8. Photographs taken from each permanent study plot.
9. Information concerning hydrology, soils, vegetation, fish and wildlife use of the MCMB, or any other pertinent or anecdotal information about, or unforeseen events that occurred on the MCMB such as unusual weather, flooding, etc.
10. A summary of the unit transactions for the year and a total number of available units by type.

11. Financial assurance accounting statement.

Reports are intended to document the progress of each component of the MCMB, as well as the MCMB in general toward achieving the goals and performance standards of the MCMB.

These reports will be consistent in scope and extent as required by the USACE in accordance with Regulatory Guidance Letter 06-03.

9.0 IMPROVEMENT UNIT/DEBIT DETERMINATION

Improvement units shall be established for each wetland improvement or creation acre within the MCMB using a functional value analysis of the each area prior to, and post management activity (enhance, restore, create). The resulting wetland functional improvement units for the MCMB shall become available for use in accordance with the following schedule:

1. The Shelby Unit totals eight-three and six-tenths (83.6) wetland improvement acres. Thirty-five percent (35%) of the projected wetland functional value improvement units at lift year ten (10) will become available (advanced credit units) upon the execution of this MBI; filing of the USACE approved conservation easement; the Sponsor ceasing all land uses that are not consistent with this MBI; the USACE receiving a copy of the USACE-approved, signed, and recorded perpetual conservation easement, and establishment of an appropriate financial assurance approved by the Regulatory Branch, USACE, Galveston District. The remaining projected or documented improvement units, or a portion of, shall be made available when the Sponsor has met the remainder of, or documented satisfactory progress towards, the performance standards. The USACE, after coordination with the MBRT, shall report in writing with verification or rejection of the Sponsor's determination. Table 9.0 presents the Shelby Unit HGM time lift analysis of all anticipated improvement units and summarizes the advanced units percentage as discussed above.
2. The Kenney Unit totals eighty-three and eight tenths (83.8) wetland improvement acres. Thirty-five percent (35%) of the projected wetland functional value improvement units at lift year ten (10) will become available (advanced credit units) upon the execution of this MBI; filing of the USACE approved conservation easement; the Sponsor ceasing all land uses that are not consistent with this MBI; the USACE receiving a copy of the USACE-approved, signed, and recorded perpetual conservation easement, and establishment of an appropriate financial assurance approved by the Regulatory Branch, USACE, Galveston District. The remaining projected or documented improvement units, or a portion of, shall be made available when the Sponsor has met the remainder of, or documented satisfactory progress towards, the performance standards. The USACE, after coordination with the MBRT, shall report in writing with verification or rejection of the Sponsor's determination. Table 9.0.1 presents the Kenney Unit HGM time lift analysis of all anticipated improvement units and summarizes the advanced units percentage as discussed above.
3. The Kenny Unit shall have one thousand five hundred sixty six (1,566) linear ft of stream restoration units associated with fifteen and one tenth (15.1) acres of restored riparian woodlands. Five hundred twenty (520) foot of stream units shall be available upon the execution of this MBI, filing of the USACE approved conservation easement, and Sponsor ceasing all land uses that are not consistent with this MBI, the USACE receiving a copy of the USACE-approved, signed, and recorded perpetual conservation easement, and establishment of an appropriate financial assurance approved by the Regulatory Branch, USACE, Galveston District. The remaining one thousand forty-six linear ft (1,046) of credit shall be available when the Sponsor has met the remainder of the performance standards. The USACE, after coordination with the MBRT, shall report in writing with verification or rejection of the Sponsor's determination.

The number of functional improvement (positive) units withdrawn, as compensation for adverse (negative) impacts authorized by USACE permits, will reduce the number of improvement credit units by functional category available for use in the MCMB's credit availability account.

TABLE 9.0
HGM FUNCTIONAL LIFT PROJECTIONS
SHELBY UNIT - MILL CREEK MITIGATION BANK
AUSTIN COUNTY, TEXAS

HGM WAA	Baseline	Year 1	Year 3	HGM Analysis Time Periods			Year 20	Year 20 Totals
				Year 5	Year 10	Year 10 Totals		
Scrub Creation WAA								
Temporary Storage of Water	0.00	6.36	0.33	0.52	0.85	8.06	1.25	9.31
Maintain Plant and Animal	0.00	3.42	0.00	1.08	2.75	7.25	1.67	8.92
Removal of Elements	0.00	6.63	0.40	0.67	0.80	8.50	1.00	9.50
Scrub Overflow WAA								
Temporary Storage of Water	2.59	-0.58	0.36	0.23	0.36	0.37	0.52	0.89
Maintain Plant and Animal	3.33	-1.46	0.41	0.76	2.51	2.22	0.93	3.15
Removal of Elements	3.99	-0.84	0.37	0.47	0.56	0.56	0.70	1.26
Forested Overflow WAA								
Temporary Storage of Water	8.48	0.00	0.00	0.00	0.53	0.53	0.97	1.50
Maintain Plant and Animal	10.39	0.00	1.17	1.17	4.27	6.61	2.01	8.62
Removal of Elements	13.07	0.00	0.00	0.00	1.34	1.34	0.67	2.01
Forested Flooded WAA								
Temporary Storage of Water	14.28	11.11	0.00	0.00	1.13	12.24	0.00	12.24
Maintain Plant and Animal	15.68	0.00	1.66	1.19	5.58	8.43	0.47	8.90
Removal of Elements	20.05	5.13	0.00	0.00	1.90	7.03	0.00	7.03
Forested Captured WAA								
Temporary Storage of Water	9.02	4.47	0.00	0.00	0.60	5.07	0.00	5.07
Maintain Plant and Animal	11.18	0.00	1.05	1.13	3.53	5.71	0.00	5.71
Removal of Elements	12.66	1.44	0.00	0.00	1.20	2.64	0.00	2.64

	Total 10 Year Projected Lift	Total 20 Year Projected Lift	35% of 10 Year Projected Lift
Temporary Storage of Water	26.27	29.01	9.19
Maintain Plant and Animal	30.22	35.30	10.58
Removal of Elements	20.07	22.44	7.02

**TABLE 9.0.1
HGM FUNCTIONAL LIFT PROJECTIONS
KENNEY UNIT - MILL CREEK MITIGATION BANK
AUSTIN COUNTY, TEXAS**

HGM WAA	HGM Analysis Time Periods							
	Baseline	Year 1	Year 3	Year 5	Year 10	Year 10 Totals	Year 20	Year 20 Totals
Farmed Meadow WAA								
Temporary Storage of Water	3.64	2.38	1.35	3.06	2.35	9.14	3.16	12.30
Maintain Plant and Animal	4.03	0	2.2	1.47	8.8	12.47	2.93	15.40
Removal of Elements	9.02	2.86	0.88	1.76	1.76	7.26	2.20	9.46
Forested WAA								
Temporary Storage of Water	12.2	7.99	0	0	2.11	10.1	2.13	12.23
Maintain Plant and Animal	16.45	-1.65	1.65	0	7.64	7.64	2.35	9.99
Removal of Elements	18.52	3.67	0	0	2.26	5.93	0.94	6.87
Open Meadow WAA								
Temporary Storage of Water	10.16	6.65	1.02	2.76	2.43	12.86	3.56	16.42
Maintain Plant and Animal	5.63	0	3.07	2.05	12.28	17.4	4.09	21.49
Removal of Elements	14.43	3.99	1.23	2.46	2.46	10.14	3.07	13.21
	Total 10 Year Projected Lift			Total 20 Year Projected Lift			35% of 10 Year Projected Lift	
Temporary Storage of Water	32.1			40.95			11.24	
Maintain Plant and Animal	37.51			46.88			13.13	
Removal of Elements	23.33			29.54			8.17	

9.1 Shelby Mitigation Units

Mitigation units in the availability account representing the Shelby Unit may be used to compensate for unavoidable adverse impacts to Waters of the United States in accordance with the following analysis:

- The HGM Functional Value Analysis in Appendix A results in projected total wetland function improvements resulting from meeting the performance standards to equal 29.01 Temporary Storage of Water Units, 35.30 Maintain Plant and Animal Community Units, and 22.44 Removal of Elements Units. All of the generated improvement units, as verified by future functional value analysis, are units that can be utilized one to one in 1/10th unit increments to offset wetland functional value losses allowed by USACE authorized activities;
- Improvement unit use shall be multiplied by a minimum of 1.5 when the MCMB is used to mitigate for adverse impacts in the secondary service area. In exceptional cases, the USACE may allow use of the MCMB outside of these service areas on a case-by-case basis;
- For adverse impacts to Waters of the United States authorized by a standard individual or after-the-fact DA permit, a higher unit use ratio may be required; and
- No improvement units at the Shelby Unit shall be established for open water or stream impacts at this time.

9.2 Kenney Mitigation Units

Mitigation units in the availability account representing the Kenney Unit may be used to compensate for unavoidable adverse impacts to Waters of the United States in accordance with the following analysis:

- The HGM Functional Value Analysis in Appendix B results in the projected total wetland function improvements resulting from meeting the performance standards to equal 40.95 Temporary Storage of Water Units, 46.88 Maintain Plant and Animal Community Units, and 29.52 Removal of Elements Units. All of the generated improvement units, as verified by future functional value analysis, are units that can be utilized one to one in 1/10th unit increments to offset wetland functional value losses allowed by USACE authorized activities;
- Improvement unit use shall be multiplied by a minimum of 1.5 when the MCMB is used to mitigate for adverse impacts in the secondary service area. In exceptional cases, the USACE may allow use of the MCMB outside of these service areas on a case-by-case basis;
- For adverse impacts to Waters of the United States authorized by a standard individual or after-the-fact DA permit, a higher unit use ratio may be required; and
- The Kenney Unit contains one thousand five hundred sixty-six (1,566) linear ft of stream credit. Mitigation for temporary and permanent impacts to streams will be determined for each permitted activity at the discretion of the District Engineer.

If the number of units required for compensation is not a whole number, then it will be rounded to the nearest tenth. For example, the MCMB availability account will be debited 3.5 Maintain Plant and Animal units for a 3.54 Maintain Plant and Animal unit loss. HGM Interim, or the current functional value

assessment technique approved for use in the Galveston District will be used to determine the functional unit losses resulting from the authorized activity.

9.3 Alternative Credit Debiting Method

To facilitate the public's ability to utilize the MCMB to mitigate for USACE authorized wetland impacts less than three (3) acres in total extent, a surrogate Functional Capacity Index (FCI) for the (three) HGM variables, Temporary Storage and Detention of Water, Maintain Plant and Animal Communities, and Removal and Sequestration of Elements and Compounds, can be used.

The surrogate FCI scores are:

- High Quality Wetlands equal a 1.0 FCI, and will debit one (1) whole unit from each (3 total) HGM improvement category;
- Medium Quality Wetland equal 0.7 FCI, and will debit seven-tenths (0.7) of a unit from each (3 total) HGM improvement category; and
- Low Quality Wetlands equal 0.5 FCI, and will debit five-tenths (0.5) of a unit from each (3 total) HGM improvement category.

To illustrate using a High Quality Wetland example, a permittee would mitigate for one (1) acre of High Quality wetland impact by acquiring one Temporary Storage of Water improvement unit; one Maintain Plant and Animal improvement unit, and one Removal of Elements improvement unit.

If the number of units required for compensation is not a whole number, then it will be rounded to the nearest tenth. Improvement units can be debited in 1/10th unit increments.

If a consensus regarding a surrogate score for the proposed impact site cannot be achieved by the Permit Manager, Permittee, and Coordinating Agencies, the Permittee has the option to utilize the next higher surrogate debiting ratio or perform a complete and approved HGM model analysis of the impact site to establish the compensatory mitigation units required.

10.0 PROCEDURES FOR USING THE MITIGATION BANK

An applicant for a Department of the Army permit may use mitigation bank improvement units from the MCMB to provide compensatory mitigation for their project's unavoidable adverse impacts to the aquatic environment if approved by the USACE. To receive approval to use the MCMB, the applicant must, at a minimum, demonstrate to the USACE that:

1. There is no practicable alternative to the discharge of dredged or fill material into a wetland or other Water of the United States.
2. All appropriate and practicable measures to minimize adverse impacts to the aquatic ecosystem have been included in the project.
3. All appropriate and practicable compensatory mitigation for unavoidable adverse impacts is included in the project.

To adequately replace aquatic functions that would be lost or degraded in the project area, in-kind compensation of aquatic resource impacts would generally be required. However, out-of-kind compensation may be acceptable if the USACE determines that it is appropriate, practicable, and environmentally preferable.

On-site mitigation is preferred where there is a practicable opportunity to compensate for important local aquatic functions. However, the MCMB may be used when the USACE determines that using the MCMB is environmentally preferable to on-site or near-site compensation. In choosing among on-site mitigation, near-site mitigation, and the MCMB, the USACE would consider the likelihood of success of on-site or near-site mitigation, compatibility with adjacent land uses, practicability of long-term monitoring and maintenance, and the relative cost of mitigation alternatives. In general, the use of a mitigation bank is preferable to on-site mitigation to compensate for minor aquatic resource impacts. However, important local aquatic functions such as water quality enhancement and flood control shall be mitigated for on-site or near-site, near where the adverse impact occurs if determined appropriate and or practicable. The USACE shall have the final authority to determine the acceptability of using MCMB units as compensatory mitigation.

11.0 SERVICE AREA AND WETLAND TYPES

The primary service area for the MCMB is the Lower Brazos River basin in the Texas Blackland Prairie and South Central Plains ecoregions (Omernik, 1991) within the boundaries of the USACE-Galveston District. The primary service area for the MCMB includes portions of Austin, Brazoria, Colorado, Ft. Bend, Matagorda, Waller, and Wharton Counties.

The secondary service area is the western portion of the San Jacinto and Galveston Bay watersheds, and eastern portion of the Lower Colorado and San Bernard watersheds in the Texas Blackland Prairie and Western Gulf Coastal Plains ecoregions within the boundaries of the USACE-Galveston District. The secondary service area for the MCMB includes portions of Austin, Colorado, Fayette, Ft. Bend, Galveston, Harris, Matagorda, Montgomery, Walker, Waller, and Wharton Counties.

Figure 17 presents a depiction of the primary and secondary service areas.

The MCMB can be used to mitigate for USACE authorized impacts to emergent, shrub-scrub, and forested wetland impacts within its' service area. The MCMB shall not be utilized to compensate for any impacts to waters and wetlands under tidal influence. The MCMB shall not be utilized any impacts which occur on barrier islands or peninsulas. Use of the MCMB will be determined for appropriateness to compensate for freshwater wetland impacts permitted within a twelve (12) mile radius of colonial waterbird rookeries

12.0 ACCOUNTING PROCEDURES

1. The Sponsor shall establish and maintain for inspection a ledger of all MCMB transactions. The following information shall be recorded in the ledger for each transaction:
 - USACE permit applicant's name, address, and phone number;
 - USACE permit or project number or other identification;
 - Location and brief description of the authorized work;
 - Brief description of the nature and extent of adverse project impacts;
 - Account balance before transaction;
 - Date of transaction;
 - Number of mitigation units currently available;
 - Number of mitigation units withdrawn (debits); and
 - Account balance after this transaction.

2. The Sponsor shall provide the USACE with a copy of each MCMB transaction within 30 days of the transaction. This transaction document will include the following acknowledgement regarding the Permittees mitigation requirement:

"Sponsor agrees to satisfy and assume responsibility for the mitigation requirements assigned to Permittee by USACE in the authorization as referenced and in the manner and to the extent set forth in the MBI (dated)"

3. The Sponsor shall provide an annual statement of the account to the USACE by February 1 of each year until all units have been withdrawn and the MCMB is closed.

4. The Sponsor shall maintain an official map of the MCMB that shows the current status of each discrete geographic component of the MCMB with respect to the activities conducted to date, planned future activities, status relative to performance standards and improvement unit release, and other pertinent information.

13.0 MINERAL RESOURCES

Mineral resources, including oil and gas, may exist under the land comprising the MCMB. Other parties may own subsurface rights to these mineral resources, in whole or in part. Recognizing landowners in the State of Texas cannot control a mineral owner's access to those minerals, the Sponsor shall take all reasonable steps to develop a Mineral Management Plan (MMP) with the mineral owner(s) prior to the initiation of any mineral exploration or extraction activities. The MMP shall include a listing of all surface and subsurface ownership, a description of the anticipated impacts of the exploration and extraction activities on the local aquatic ecosystem functions and values, and a set of guidelines or best management practices that would minimize the adverse impact of those activities on the local aquatic ecosystem. The Sponsor shall, whenever practicable, work with the subsurface mineral owner(s) to develop leases, easements, or other suitable surface use agreements that are consistent with the MMP.

The exploration for, and production and transportation of, subsurface mineral resources beneath this MCMB, is acceptable provided that use of an adjacent non-wetland location is unfeasible and the resulting ground disturbing activities and surface alterations are minimized to the maximum extent practical; activities are conducted in a manner that minimizes adverse environmental impacts; impacted areas are restored to pre-existing conditions as soon as practicable; reasonable and appropriate compensatory mitigation is achieved, and the entity conducting these activities complies with all applicable regulatory requirements, including those under Section 404 of the Clean Water Act. The number of credit units in the MCMB shall be reduced by the number of functional impact units of areas adversely impacted by the activities. If sufficient unused MCMB credit units are not available, the USACE will require other appropriate off-site compensatory mitigation.

14.0 FINANCIAL ASSURANCE, DEFAULT, BANK CLOSURE

1. The Sponsor shall secure sufficient financial resources, considering inflation, to ensure that the MCMB will comply with the requirements of this MBI in the event that the Sponsor is no longer able or willing to operate the MCMB in compliance with this MBI. This financial assurance must be sufficient to provide for perpetual maintenance and operation of the MCMB's activities including any monitoring, reporting, and remedial actions that might be necessary. Site-specific considerations, such as the position of the MCMB within the watershed, normal hydrology, soils, type and extent of the site development activities, and expected relative ease or difficulty of achieving the performance standards, may affect the size of the financial assurance.
2. The Sponsor of the MCMB will establish a perpetual Escrow Fund to ensure the MCMB complies with the requirements of this MBI in perpetuity. At the onset, this Escrow Fund will be able to provide for the initial work to perform the activities to generate the improvement units and subsequent perpetual maintenance and operation of the MCMB's activities of monitoring, reporting, and remedial actions. After the USACE has signed the MBI, but before the first sale of improvement units, the Sponsor will establish the escrow fund and provide proof of establishment to the USACE District Engineer. The amount deposited into the Escrow Fund will be a set monetary amount of each improvement units sale, as determined through a separate cost analysis provided as Appendix C of this MBI. The terms of this Escrow Fund will require the holding financial institution to provide the USACE 120 days notice of any anticipated problems with the funds in this account.
3. As the Sponsor achieves the performance standards established by this plan, the size of the required financial assurances held within the Escrow Fund may be reduced if approved in writing by the USACE, after coordination with the MBRT. However, even after all performance standards have been achieved, a permanent financial assurance will still be necessary to ensure continued long-term compliance of the MCMB with the requirements of this plan. The USACE District Engineer may not unreasonably withhold reduction of the Escrow Fund to the perpetual maintenance level when documentation validates meeting the Performance Standards for establishment of the improvement units on the banking lands, and these improvements appear to be self-sustaining, barring any "act of God".
4. If ownership of the MCMB is conveyed to a successor, the financial assurance may be modified, transferred, or replaced by another financial assurance with the written approval of the USACE, after coordination with the MBRT.
5. The Sponsor shall provide an annual financial assurance statement to the MBRT by February 1 of each year. In the annual statement the Sponsor shall discuss the status of the financial assurance, assess the adequacy of the financial assurance to reasonably ensure the perpetual operation of the MCMB in compliance with the requirements of this MBI, and propose any adjustment to the financial assurance the Sponsor deems appropriate in light of the requirements of this MBI. The USACE will consider each proposal to adjust the financial assurance and, after coordination with the MBRT, provide the Sponsor a decision on that proposal within a reasonable amount of time. Approval of the Sponsor's proposal may not be unreasonably withheld.
6. Failure to maintain an adequate financial assurance shall constitute good cause for suspending or terminating operation of the MCMB. However, prior to taking such action, the USACE, after coordination with the MBRT, shall provide the Sponsor reasonable opportunity to correct any alleged financial assurance deficiencies.

14.1 Default by Sponsor

In the event the Sponsor, through intent or error, fails to commence the actions required to initiate the activities to establish and develop the improvement units on the banking lands within the first growing season after commencing improvement unit sales, the Sponsor, after 60 days prior written notice by the USACE, may be considered in Default to the terms of this MBI, the conditions set forth in Section 6.10, and the enforceable conditions to the permit authorizing the establishment of the wetland mitigation bank.

In event of Default, the terms of the Escrow Fund will allow the USACE District Engineer to direct the expenditure of funds to complete those actions required to complete improvement unit development equal to any mitigation units sold to compensate for USACE authorized activities.

14.2 Bank Closure

The MCMB shall be deemed closed upon the date that both:

1. All success criteria in Section 7.0 Performance Standards of this MBI have been met and documented; and
2. Either:
 - (a) The last authorized Improvement Unit credit has been transferred and the Financial Assurance is fully funded for all units sold; or
 - (b) The Sponsor sends the USACE and MBRT written notice stating that Sponsor is closing the MCMB and the Financial Assurance is fully funded for all units sold for compensatory mitigation.

At this point, the mitigation banking project shall be deemed complete, and the MCMB will be officially closed.

15.0 BANK OWNERSHIP/SPONSORSHIP

1. All real property to be included within the MCMB is owned by the principals of Wetlands Conservation Partners, LTD and has been pledged by Sponsor for use in the MCMB consistent with this MBI. Larry J. Gremminger; CWB, Co-Sponsor and Co-Owner, shall be responsible for developing, operating, and maintaining the MCMB subject to the requirements of this MBI. The inclusion of the aforementioned properties in the MCMB and the granting of a conservation easement restricting future land uses for the benefit of the MCMB shall not convey or establish any property interest on the part of any party to this instrument nor to any purchaser of MCMB credit units. The MBI does not authorize, nor shall it be construed to permit, the establishment of any lien, encumbrance, or other claim with respect to the property, with the sole exception of the right on the part of the USACE to require Sponsor to implement elements of the MBI, including the recording of a conservation easement, required as a condition of the issuance of a permit under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 for discharges of dredged and fill material into Waters of the United States associated with construction and operation and maintenance of the MCMB.
2. The Sponsor may convey fee simple title to any property included within the MCMB, provided the necessary conservation easements have been recorded for any property that is the subject of a previously issued credit unit. In the event of a transfer of ownership, the Sponsor will make a reasonable effort to ensure the property is conveyed to an environmentally responsible party.
3. The Sponsor may transfer Sponsorship of the MCMB to another party provided the USACE, after coordination with the MBRT approves the transfer and the new Sponsor agrees to abide by the terms of this MBI or an MBRT-approved, modified MBI. Any such request shall be submitted in writing to the USACE. The USACE reserves the right to review, after coordination with the MBRT, and approve any party to whom responsibility for construction, operation, maintenance, monitoring, or reporting may be transferred under this MBI. USACE approval shall not be unreasonably withheld. Upon approval of the transfer, the obligations of the previous Sponsor to comply with the requirements of this MBI shall be terminated. The existing financial assurance will be transferred to the new Sponsor unless a substitute financial assurance is developed and approved by the USACE, in coordination with the MBRT. The physical ownership of MCMB lands and the operating rights to the MCMB (Sponsorship) are separable components of the MCMB and may be transferred independently.
4. The Sponsor reserves the right, subject to MBRT approval, to assume full responsibility for the development, operation, and maintenance of any additional property that is added to the MCMB.

16.0 MCMB EXPANSION

Additional acreage near or adjoining the MCMB may be added to the MCMB in the future at the discretion of the Sponsor with approval by the USACE. The Sponsor shall develop and submit a site development plan to the MBRT for each proposed expansion of the MCMB. The site development plan shall include a description of the location and baseline physical and biological conditions of the area; mitigation plan; performance standards; success criteria; credit/debit determinations; long-term management; monitoring, reporting, and remedial actions; financial assurances; and other elements of the MBI. The site development plan must be approved by the USACE, in coordination with the MBRT.

17.0 VALIDITY AND TENURE OF THIS AGREEMENT

This agreement may be modified as mutually agreed to by the Sponsor and the USACE, after coordination with the MBRT. The MBRT will work to effectively evaluate any future modifications of this MBI and other management plan associated with this MCMB and shall follow the dispute resolution procedure guidance of the April 10, 2008; Final Rules for Compensatory Mitigation for Losses of Aquatic Resources in the event of disagreements. No recourse shall be taken against any individuals who have contracted with the Sponsor prior to such modifications, nor against said parties, in the event the agreement is terminated. In the event of termination of the agreement, the Sponsor shall maintain the on-site mitigation to the degree required by the applicable Department of the Army authorization. Nothing in this agreement shall be construed as altering the responsibilities, or empowering new authority in favor, of the signatory agencies.

This agreement is effective immediately on the date it is signed by the Sponsor, and USACE and shall remain in effect until it is modified or revoked. Any signatory to this agreement may terminate its participation in this agreement at any time upon written notice to the other signatories. If either the Sponsor or the USACE terminate their participation, the agreement is terminated or revoked. Notwithstanding any future termination, revocation, or modification of this agreement, the conservation easements that direct the MCMB to protect the aquatic ecosystem are perpetual.

18.0 REFERENCES

Burns, Russell M., and Barbara H. Honkala, tech. cords. 1990. *Silvics of North America Agricultural Handbook 654*. U.S. Dept. of Ag. Forest Service, Washington, D.C. Vol. 2

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

GAI-USACE Communication. 2006. "HGM Interim Functional Assessment Methodology".

Omernik J.M. 1991. "Primary Distinguishing Characteristics of Level II Ecoregions of the Continental United States."

U.S. Department of Agriculture – Natural Resources Conservation Service, 1984. "Soil Survey of Austin County, Texas."

SIGNATURE PAGE

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT

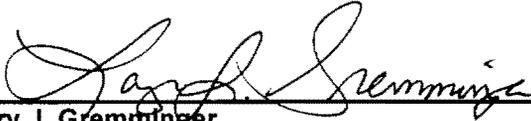


18 JUN 2008

David C. Weston
Colonel, District Commander

Date

WETLANDS CONSERVATION PARTNERS, LTD.



MAY 20, 2003

Larry J. Gremminger
General Partner

Date

SIGNATURE PAGE

U.S. FISH AND WILDLIFE SERVICE

Stephen D. Parris
Field Supervisor

Date

SIGNATURE PAGE

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6

Miguel Flores
Director, Water Quality Protection Division

Date

SIGNATURE PAGE

TEXAS PARKS AND WILDLIFE DEPARTMENT

Carter Smith
Executive Director

Date

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TEXAS COMISSION ON ENVIRONMENTAL QUALITY

Mark Fisher
Water Quality Assessment Section
Water Quality Division

Date