Terracon

February 21, 2010

Texas Commission on Environmental Quality
Attn: 401 Coordinator (MC-150)
P.O. Box 13087
Austin, TX 78711-3087

RE: **Tier II Analysis**
USACE Project No. SWG-2019-00046
Tomball ISD Approximately 151-Acres
West of Cypress Rosehill Road, North of HWY 99
Tomball, Harris County, Texas
Terracon Project No. 92187338

To whom it may concern,

On behalf of Tomball Independent School District (Applicant), Terracon Consultants, Inc. (Agent) is submitting this Tier II 401 Certification Questionnaire and Alternative Analysis Checklist as it pertains to the construction of a multi-use educational campus located in Tomball, Harris County, Texas. Contact information for both the Applicant and the Agent is below:

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The attached document contains the necessary information required to complete the Tier II process. If additional information is required or if you have any questions please contact the Agent, Chris Garza. As always, we appreciate your effort.

Sincerely,
Terracon Consultants, Inc.

Chris Garza
Field Scientist

Approved By:

Jon Lohse, PhD
Natural/Cultural Resources Group Manager

Tier II Analysis
SWG-2019-00046
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1.0 TIER II 401 CERTIFICATION QUESTIONNAIRE

I. Impacts to surface water in the State, including wetlands

A. What is the area of surface water in the State, including wetlands, that will be disturbed, altered or destroyed by the proposed activity?

A total of 4.48 acres of palustrine emergent wetlands, 0.90 acre of ponds, and 0.08 acre (579.21 linear feet) of intermittent stream will be destroyed by the proposed activity. The total acreage of these features is 5.46 acres (579 linear feet). A delineated features map is attached as Exhibit 3.0.

Jurisdictional Wetlands and Other Water Impacts			
Feature ID	**Type**	**Acres**	**Linear-Feet**
Wetland A	PEM	0.09	-
Wetland B	PEM	0.62	-
Wetland C	PEM	0.41	-
Wetland D	PEM	2.18	-
Wetland E	PEM	0.73	-
Wetland F	PEM	0.31	-
Wetland G	PEM	0.01	-
Wetland H	PEM	0.01	-
Wetland I	PEM	0.12	
Pond A	Man-Made	0.90	-
Tributary B	Intermittent	0.08	579.21
Total Impacts to All Jurisdictional WOTUS		**5.46**	**579.21**

B. Is compensatory mitigation proposed? If yes, submit a copy of the mitigation plan. If no, explain why not.

Yes, compensatory mitigation will be required for impacts to the features outlined above. An assessment of the ecological functional capacity index (FCI) for the features was made using the interim hydrogeomorphic assessment (iHGM) for riverine herbaceous/shrub wetlands. The results are provided below:

North Wetland Complex Wetlands A, B, G, H and Tributary B			
Functional Capacity Index	**Pre-Project Functional Capacity Units**	**Post-Project Functional Capacity Units**	**Difference (with 1.5x multiplier)**
TSDSW*	0.00	0.00	0.00
MPAC*	0.45	0.00	0.79
RSEC*	0.32	0.00	0.55
South Wetland Complex Wetlands C, F and Pond A			
Functional Capacity Index	**Pre-Project Functional Capacity Units**	**Post-Project Functional Capacity Units**	**Difference (with 1.5x multiplier)**
TSDSW*	0.00	0.00	0.00
MPAC*	1.00	0.00	1.50
RSEC*	0.77	0.00	1.15
West Wetland Complex Wetlands D and E			
Functional Capacity Index	**Pre-Project Functional Capacity Units**	**Post-Project Functional Capacity Units**	**Difference (with 1.5x multiplier)**
TSDSW*	0.00	0.00	0.00
MPAC*	1.79	0.00	2.69
RSEC*	1.23	0.00	1.89
Total Functional Capacity Units			
TSDSW*	-	-	**0.00**
MPAC*	-	-	**4.98**
RSEC*	-	-	**3.59**
Total Required FCUs			**8.57**

The project site is located within the secondary service area of Tarkington Bayou Mitigation Bank, the closest United States Army Corps of Engineers (USACE) approved to the project site; therefore, a 1.5 multiplier has been applied to the necessary mitigation credits. The iHGM worksheet can be seen on the attached forms.

The Level I Stream Condition Assessment was used to assess the functional condition of Tributary B. The score derived from the assessment was used to calculate the necessary compensatory mitigation. A summary of the results can be seen in the table below.

Feature Name	Transect ID	Channel Condition (CV)	Riparian Buffer (BV)	Aquatic Use (UV)	Channel Alteration (AV)	Condition Index (CI)
Tributary B	Transect 1	3.00	1.75	1.00	2.00	1.94
	Transect 2	2.00	1.75	1.00	2.00	1.69
	Transect 3	2.00	1.75	1.00	2.00	1.69
Average Condition Index						**1.77**
Impact Factor						**1.00**
Linear Feet of Impact						**579**
Compensation Requirement						**1,027**

According to these calculations, the average condition index of Tributary B is 1.77. Therefore, permanent impacts across the entire 579 linear feet of the feature will require 1,027 compensatory mitigation credits. The project site is located within the primary service area of the Katy Prairie Stream Mitigation Bank operated by Restoration Systems, LLC. The Applicant is prepared to enter into a pre-purchase agreement with Restoration Systems, LLC to ensure credit availability when the Individual Permit is issued. Proof of purchase will be sent to the USACE when the sale is finalized. The individual scores of each transect can be seen on the attached forms.

C. *Please complete the attached Alternatives Analysis Checklist.*

The alternatives Analysis Checklist is supplied in Section 2.0 of this letter.

II. Disposal of waste materials

A. *Describe the methods for disposing of materials recovered from the removal or destruction of existing structures*

There were three small structures within the project site that were removed. The first was a mobile home unit that was sold by the Applicant and wheeled off the property. The second and third were small pipe and tin sheet structures used for shading cattle and storing hay. They were dismantled, and the materials were taken to the local dump.

B. *Describe the methods for disposing of sewage generated during construction. If the proposed work establishes a business or subdivision, describe the method for disposing of sewage after competing the project.*

Presently, sewage is disposed by Texas Outhouse (TCEQ Permit #22739), a private portable toilet vendor. Pump trucks clean the units on a regular basis, and the waste is transported off site. Upon completion of the campus, sewage will be treated by an offsite waste water treatment facility (TPDES Permit No. WQ0015691001).

C. *For marinas, describe plans for collecting and disposing of sewage from marine sanitation devices. Also, discuss provisions for the disposing of sewage generated from day-to-day activities.*

NA

III. Water quality impacts

A. Describe the methods to minimize the short-term and long-term turbidity and suspended solids in the waters being dredged and/or filled. Also, describe the type of sediment (sand, clay, etc.) that will be dredged or used for fill.

Considering the features will be permanently removed from the project site, short-term and long-term turbidity and suspended solids may not be an issue. The features will be cleared, graded, and backfilled with clay-based fill material.

B. Describe measures that will be used to stabilize disturbed soil areas, including: dredge material mounds, new levees or berms, building sites, and construction work areas. The description should address both short-term (construction related) and long-term (normal operation or maintenance) measures. Typical measures might include containment structures, drainage modifications, sediment fences, or vegetative cover. Special construction techniques intended to minimize soil or sediment disruption should also be described.

During construction, disturbed soil areas are stabilized with wood matting, hay bales, and silt fencing. Storm water discharges associated with construction activities have been authorized under the terms and conditions imposed by Texas Pollutant Discharge Elimination System General Permit Number TXR150000 (Permit No. TXR15987W). Additionally, a 50-foot vegetative buffer is being preserved around the entire perimeter of the on-site stream.

Post construction soil stabilization measures include sodding/vegetating exposed areas and preserving the aforementioned 50-foot vegetative buffer around the on-site stream. A stormwater interceptor (non-mechanical structure designed to trap sediments and debris) will be installed within the drainage system, and the on-site retention basin will provide further sediment settling before stormwater leaves the property.

C. Discuss how hydraulically dredged materials will be handled to ensure maximum settling of solids before discharging the decant water. Plans should include a calculation of minimum settling times with supporting data (Reference: Technical Report, DS-7810, Dredge Material Research Program, GUIDELINES FOR DESIGNING, OPERATING, AND MAINTAINING DREDGED MATERIAL CONTAINMENT AREAS). If future maintenance dredging will be required, the disposal site should be designed to accommodate additional dredged materials. If not, please include plans for periodically removing the dried sediments from the disposal area.

NA

D. Describe any methods used to test the sediments for contamination, especially when dredging in an area known or likely to be contaminated, such as downstream of municipal or industrial wastewater discharges.

The project site is not located in an are known or likely to be contaminated; therefore, sediments will not be tested for contamination.

2.0 TIER II ALTERNATIVE ANALYSIS CHECKLIST

I. Alternatives

A. How could you satisfy your needs in ways which do not affect surface water in the state?

Considering the size, location, and quantity of surface water features, it is not possible to build the campus, utilities, and related infrastructure in such a way as to completely the features. Attempts to do so are explained below.

Impacts to the surface water features that will remain (i.e. Tributary A) have been minimized and avoided by 1) only affecting those areas required for road crossings and drainage outlets, 2) establishing a 50-foot existing vegetative buffer around the perimeter of the stream, and 3) neither increasing nor decreasing the hydrologic input/output of the feature.

B. How could the project be re-designed to fit the site without affecting surface water in the state?

In considering alternatives to the proposed design, Tomball ISD had to comply with specific Fire Marshall, Texas Department of Transportation (TxDOT), and Harris County building codes. For example, a commuter parking analysis determined the mandatory minimum number of available spaces. Other code requirements including emergency vehicle ingress and egress requirements were calculated and incorporated into the final design. Further information regarding alternatives and these constraints is included below.

Alternative B

Alternative B was designed to comply with the code requirements mentioned above. However, Alternative B attempts to avoid Wetland B and Wetland D. The Alternative B Site Layout can be seen on Exhibit 7.1.

In considering this alternative, it was soon determined that Wetland B cannot be avoided in the manner depicted on the site layout. The turning angles associated with the altered north entrance road are too tight for buses and emergency vehicles. Also, the altered north entrance road is too near the proposed water processing facility. Wetland D is avoided at the cost of essential athletic facilities, most notably the track and field facilities and auxiliary football fields. Further, this alternative does not allow enough room for the 50-foot vegetated buffer around the perimeter of Tributary A. For these reasons, Alternative B was determined to be nonviable.

Alternative C

Alternative C is the original design of the campus. The Alternative C Site Layout can be seen on Exhibit 7.2.

As proposed, Alternative C would not avoid any of the wetlands at any point during construction. This was immediately determined to be the least desirable option because impacting all the wetland features at once would immediately force the Applicant into an IP that would cause substantially delay construction and cost the Applicant several millions of dollars. Also, much like Alternative B, Alternative C does not allow for the 50-foot vegetated buffer around Tributary A, nor does it take into consideration secondary impacts to Tributary A. For these reasons, Alternative C was determined to be less desirable than Alternative B.

C. How could the project be made smaller and still meet your needs?

One of the key design constraints incorporated into the proposed design is ease of ingress and egress for school buses, commuters, and emergency vehicles. The roads have been designed to comply with TxDOT and Harris County code requirements. Similarly, the capacity and placement of parking lots has been designed to comply with Fire Marshall requirements. Given these constraints, the size of the parking lots and roads along with their orientation is very limited.

The orientation and placement of the stadium, elementary school, and junior high school was determined to be the only practical orientation that allows for compliance with these regulations. Further, the school buildings and stadium are too large to move in such a way as to permanently avoid the onsite aquatic features. Support facilities including the practice fields, recreational and athletic facilities, and infrastructure facilities represent the only structures small enough to be maneuvered around the project site. These facilities have been situated to avoid as much of the existing aquatic features as possible.

D. What other sites were considered?

1. What geographical area was searched for alternative sites?

See attached Offsite Alternatives.

2. How did you determine whether other non-wetland sites are available for development in the area?

See attached Offsite Alternatives.

3. *In recent years, have you sold or leased any lands located within the vicinity of the project? If so, why were they unsuitable for the project?*

No.

E. What are the consequences of not building the project?

Considering the educational needs of the community, not building the proposed campus will perpetuate the problem of overcrowded classrooms and it would not comply with the voter mandated bond package.