



RE: Stevenson (CWA-06-2011-2709)
Chuck Kibler to: Lorena Vaughn
Cc: Russell Murdock

07/18/2012 02:02 PM

From: "Chuck Kibler" <chuck@kiblerlaw.com>
To: Lorena Vaughn/R6/USEPA/US@EPA
Cc: Russell Murdock/R6/USEPA/US@EPA

1 attachment



1446_718-49446.56.pdf

FILED
2012 AUG -2 PM 2:25
REC'D - SALL REGIONAL CLERK
EPA REGION VI

Ms. Vaughn,

I apologize in the delay in getting the attached document to you. The original document, as you may note from the Certificate of Service, was sent to your offices certified mail. I mailed the certified version to your offices at the same time I mailed (by regular mail) copies to both Mr. Murdock and my client. It appears that none of those letters found their destination. Further, I have found that at least one other piece of mail (in another case) failed to find its destination which was mailed on the same day. I have opened an inquiry with my local Postmaster to investigate this incident. Also, the green card has never been returned to our offices.

I apologize for any inconvenience this may be to the Clerk's Office, Mr. Murdock or the Presiding Officer. I have discussed this incident with Mr. Murdock, and he has advised me that he has no issues with our late submission, given the circumstances.

I have, on this date, mailed another copy of the Response by certified mail for your records.

Again, my apologies for any inconvenience this may have caused.

Please contact our offices if there are any questions regarding this matter.

Charles (Chuck) Kibler, Jr.
The Kibler Law Firm
765 N. 5th Street
Silsbee, Texas 77656
(409) 373-4313
Fax (888) 720-1177
<http://www.kiblerlaw.com>

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From: Lorena Vaughn [mailto:Vaughn.Lorena@epamail.epa.gov]
Sent: Wednesday, July 11, 2012 1:31 PM

To: chuck@kiblerlaw.com
Cc: Patrick Rankin; Barbara Aldridge; Russell Murdock
Subject: Stevenson (CWA-06-2011-2709)

Mr. Kibler,

I received a voice mail message from Russell asking if I had received any documents on Stevenson and I have not.

If you have the document in a PDF, if you could please email it again.

I am on vacation starting tomorrow thru the 27th of July.

Thank you.

Lorena,

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2012.0.2195 / Virus Database: 2437/5125 - Release Date: 07/11/12

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 6

In the Matter of

Mr. Henry R. Stevenson, Jr.
Parkwood Land Company

Docket No. CWA-06-2011-2709

Respondents

FILED
2012 AUG -2 PM 2:25
REGULATORY COMPLIANCE SECTION
EPA REGION VI

**RESPONDENT'S SUPPLEMENTAL RESPONSE TO COMPLAINANT'S MOTION
FOR ACCELERATED DECISION AS TO PENALTY**

Henry R. Stevenson, Jr., Individually and as Owner of Parkwood Land Co. (hereinafter, "Non-Movant," "Stevenson" or "PLC"), files this Supplemental Response to Complainant's Motion for Accelerated Decision as to Penalty and would respectfully show the following:

I. Jurisdiction

1. Although the Court has previously granted full judgment in favor of the Complainant under its Accelerated Decision, Respondent still contends a lack of jurisdiction on part of the Environmental Protection Agency (hereinafter "EPA" or "Complainant") as previously argued and no portion of this Supplemental Response should be construed as Respondent's subjugation to jurisdiction.

II. Standard of Review

2. Respondent agrees with the Standard of Review offered in Complainant's Motion for Accelerated Decision as to Penalty. Specifically, "[a]n accelerated decision may be rendered as to 'any or all parts of a proceeding, without further hearing or upon such limited additional evidence, such as affidavits, as [the Presiding Officer] may require, if no genuine issue of material fact exists and a party is entitled to a judgment as a matter of law.'" 40 C.F.R. §22.20(a).

3. Under Rule 56(c), the movant has the initial burden of showing that there exists no genuine issue of material fact by identifying those portions of “the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show[ing] that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986) (outlining the Court’s interpretation of Rule 56(c)). An issue of fact is “material” if it may affect the outcome of the suit under governing law.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). The nonmovant is tasked with providing “specific facts showing that there is a genuine issue for trial.” *Id.* at 587. If the nonmoving party is unable to prove its burden, the moving party is entitled to a judgment of an accelerated decision as a matter of law. *Id.*

III. Administrative Procedures to Date

4. Respondent agrees with the Administrative Procedures outlined in Complainant’s Motion for Accelerated Decision as to Penalty.

IV. Arguments

5. Complainant’s Motion for Accelerated Decision as to Penalty provides the following:

“On multiple dates between August 9, 2007 and August 3, 2010, Respondents discharged dredged material and/or fill material, as defined by §502 of the CWA, 33 U.S.C. §1362 and 40 C.F.R. §232.2, from point sources, including heavy equipment, into approximately 1.26 acres of wetlands within the property adjacent to the permitted repair of the levee surrounding the wetlands. The Complaint pertains solely to discharges unrelated to the maintenance of the levee, which were not authorized by Nationwide Permit 3. The levee surrounds a part of the 1.26 acres of the wetlands within the property, which would otherwise abut a navigable-in-fact body of water, the Neches River.”

6. Complainant’s Motion for Accelerated Decision as to Penalty further provides:

“Over the past several years, Respondents have had extensive interactions with the Corps [of Engineers]. The Corps has documented an extensive compliance history with the Respondents since April 1991, including four

confirmed unauthorized activities (excluding the current violation), two after-the-fact issued permits, four issued permits, three withdrawn permit applications and 12 jurisdictional determination requests.”

A. Fill Was Authorized under NWP #3

7. Permit Number SWG-2007-84-RN (D-19279), identified as Complainant’s Exhibit 31, pgs. 14-16 (a copy of which is attached as Exhibit “A” to this Response), provides, “NWP 3 authorizes the repair of a previously-authorized currently-serviceable structure or fill provided the structure or fill is not put to a different use than that for which it was originally constructed. *Minor deviations due to changes in construction techniques, materials or the like are authorized.*” See Exh. “A” (emphasis added).

8. As noted in Complainant’s Motion for Accelerated Decision as to Penalty, the levee on Respondent’s property was constructed in the early 1900’s. Based upon Respondent’s information and belief, construction of the levee occurred in 1912. At a time when Henry Ford had yet to perfect the automobile for mass production, it is highly unlikely that the levee was constructed by mechanical means. While there are no records available to support this contention, it is also likely that, based upon construction standards of that day, the levee was constructed to a width and compression standard which would not support heavy equipment such as dump trucks or earth-moving equipment. It is also probable that the width of the levee (again, there are no documented records to ascertain the original dimensions of the levee) has eroded, to some degree, over the previous century.

9. Respondent introduced clean fill material to the inside portion of the southern portion of the levee under NWP #3 in order to (a) insure that the levee top would sustain the introduction of heavy equipment for periodic maintenance or repair and (b) preserve the structural integrity of the levee itself to perform in the manner it was intentionally constructed. It should be stressed

that Respondent's introduction of clean fill material was to the *inside* of the levee and not into the Neches River.

10. The southern portion of Respondent's levee is the access point to the property. If any activity is to be conducted upon the property, the levee, at that particular point, must be (a) wide enough and (b) strong enough to sustain entry. The levee must also be of a structural integrity to continue to provide for its original intention – keep out floodwaters from the Neches River.

11. Complainant's "Declaration of Barbara J. Aldridge" provides no comment or evidence of where Respondent's fill was placed or why Respondent did so, although Ms. Aldridge conducted a site survey upon the property. Ms. Aldridge's Declaration states that "[t]he unauthorized activity circumvented the permitting process under Section 404 of the Act and resulted in avoidable impact to tidal waters of the United States, in this case, segment 0601, Neches River Tidal, as identified by the Texas Commission on Environmental Quality, 2004." However, Complainant provides no evidence that the "tidal waters" are so affected. The Court's holding upon liability in this case is based upon Respondent's property being subject to jurisdiction as having a "significant nexus" because of adjacency to the Neches River. However, as noted in Respondent's original Response to Motion for Accelerated Decision, there exists a genuine issue of material fact as to whether a hydrological connection exists between the area in which Respondent introduced fill upon his property and the waters of the Neches River. Respondent's introduction of fill upon the property do not impact the "tidal waters" of the Neches River and Complainant has failed to provide any evidence otherwise.

12. The 1.26 acres included in the "violation" is no more than eight (8) feet wide (and in some places, much less); is placed on the side of the levee *opposite* the Neches River; and follows the original levee structure for a number of feet which has been calculated as 1.26 acres

by Ms. Aldridge. As noted, this clean fill was provided to insure the structural integrity of the original levee and sustain the load of mechanized equipment as ascertained by Respondent. As such, Respondent's actions are in compliance with NWP #3 as it was a "minor deviation due to construction techniques" and is "authorized."

B. Complainant Fails to Provide Any Evidence of Impact

13. Ms. Aldridge's Declaration supports that a \$32,500 fine is correct by providing, "the extent of impact to the aquatic environment. Wetlands provide beneficial function to the human environment, including fish and wildlife habitat, flood protection, and floodwater storage, water filtration and water quality improvement, carbon sequestration, aesthetics, recreational and educational benefits and biological productivity." However, Ms. Aldridge's Declaration provides no evidence that Respondent's introduction of fill has any impact to the "aquatic environment."

14. By nature of its proximity to the Gulf of Mexico at Respondent's property location, the Neches River is "brackish" by nature -- meaning there is a salt content to the water. While Respondent's property, by nature of having a thirteen-foot (13 foot) levee surrounding the property, does hold a measure of water (there exists no natural drain for rainwater), Complainant cannot, and has not, shown that such water sustained on Respondent's property contains any measure of salinity. It does not. As such, this provides at least some evidence that there exists no "ebb and flow" of water from the Neches River to Respondent's property - which indicates the levee is accomplishing its intended purpose. Therefore, there is no "flood protection" (other than the flood protection afforded Respondent from the levee) or "floodwater storage" which is hindered by Respondent's actions.

15. Further, Complainant has produced no evidence that Respondent's actions inhibit or impact the "fish and wildlife habitat." There are no fish on Respondent's property, as any water present is quite shallow, so Respondent must assume that any impact alleged relates to the Neches River to which the Corps already admits, in memorandums already provided to the Court, that there is no hydrological connection.

16. Lastly, although Ms. Aldridge's Declaration refers to "water filtration" and "water quality improvement and carbon sequestration," there is no evidence produced by Complainant that Respondent's activity inhibits or impacts the water quality of the area. Respondent argues it does not.

C. Prior Record of Involvement with the U.S. Corps of Engineers

17. Complainant's Motion for Accelerated Decision as to Penalty and Ms. Aldridge's attached Declaration further attempts to prove its claim for a \$32,500 penalty by providing "Respondents have a long history of involvement with the Corps of Engineers and the Act's Section 404 application process. The Corps has documented an extensive compliance history with the Respondents since April of 1991, including four confirmed unauthorized activities (excluding the current violation), two after-the-fact issued permits, four issued permits, three withdrawn permit applications and 12 jurisdictional determination requests."

18. While Respondent does have a history of interaction with the Corps, this "evidence" provides nothing more than the fact that Respondent own substantial amounts of property which, in some cases, require permitting or interaction with the Corps of Engineers. Stating that Respondent has been issued four permits or withdrawn three other applications shows that Respondent has always attempted to comply with the statutes and regulations which applied Respondent's various properties. Numerous jurisdictional requests to the Corps further show

that Respondent has, on multiple occasions, requested a ruling or interpretation of jurisdiction from the Corps regarding a particular parcel of land in order to determine the applicable statutes or laws. Further, in each instance in which the Corps has found an “unauthorized activity,” Respondent has complied with the Corps’ requests by either (a) obtaining an “after-the-fact” permit or (b) otherwise altering the activity to satisfy the Corps’ ruling.

19. Respondent’s “evidence” to support the \$32,500 fine by stating that Respondent has “a long history” of interaction with the Corps actually supports Respondent’s position that he has a “long history” of attempted compliance with all statutes and regulations associated with the ownership of property which require permitting or other measures of compliance.

D. Complainant Assumes Respondent’s Knowledge

20. Complainant’s Motion for Accelerated Decision as to Penalty states, “[b]ecause of Respondent’s action in failing to achieve compliance and Respondent’s experience with matters regarding jurisdictional wetlands, Respondents must have known or suspected that their fill activities would result in additional CWA violations. As a result, the degree of culpability was significant.”

21. First, Complainant assumes that because Respondent has failed to comply, that such actions were (a) because Respondent has requested or has been involved with previous interactions with the Corps, Respondent has “special knowledge” of the statutes and regulations and the CWA in specific. Respondent is not a lawyer, nor does he have any such “special knowledge.” Respondent’s knowledge, or lack thereof, is acknowledged by Complainant’s allegation that Respondent has “12 jurisdictional requests.” Although Respondent’s knowledge has broadened considerably since this original complaint was filed, Respondent had no such

“special knowledge,” and therefore cannot be attributed with a “significant degree of culpability.”

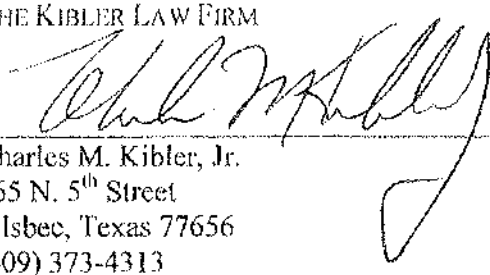
22. Further, Respondent has always contended, as was explained to him originally by the Corps, that this parcel is not subject to CWA jurisdiction as the property is not have a hydrological connection – a point iterated by the Corps itself. Complainant attempts to prove that the \$32,500 penalty requested is “proper” based upon Respondent’s different interpretation of the existing ruling. This is nothing more than stating “if you do not agree with the government and fail to comply, you must be incorrect and severely punished for your failure to agree with the government.”

E. Conclusion

23. For the reasons set forth in this supplemental response, Respondent requests the Court to hold that Respondent is not in violation of the Clean Water Act, or based upon the arguments contained herein, the Court approve no penalty assessment.

Respectfully Submitted,

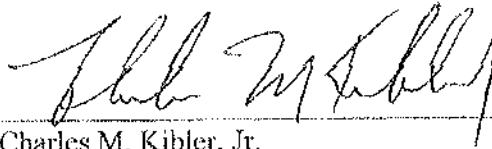
THE KIBLER LAW FIRM



Charles M. Kibler, Jr.
765 N. 5th Street
Silsbec, Texas 77656
(409) 373-4313
Fax (888)720-1177
Attorney for Respondents

CERTIFICATE OF SERVICE

I certify that on June 26, 2012 a true and correct copy of Respondent's Response to Movant's Motion for Accelerated Decision was served to each person listed below by the method indicated.



Charles M. Kibler, Jr.

Russell Murdock
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas Texas 75202

Lorena S. Vaughn *Via Certified Mail RRR #7009 0080 0001 1577 1853*
Regional Hearing Clerk
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202

EXHIBIT "A"



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TX 77653-1229

April 17, 2007

COPY

REPLY TO
ATTENTION OF:

Evaluation Section

SUBJECT: Permit Number SWG-2007-84-RN (D-19279), Nationwide Permit
Verification

James G. White
GTI Environmental Incorporated
11999 Katy Freeway, Suite 130
Houston, Texas 77079-1606

Dear Mr. White:

This office received a request to repair an existing levee on a property located northeast of the intersection of the Neches River and Interstate 10. Based on our review of the project, we have determined that you may proceed with the repair of the existing levee as proposed in your December 11, 2006, letter sent on behalf of Parkwood Land Company provided the activity complies with the enclosed three-sheet project plans and Nationwide Permit (NWP) General/Regional Conditions. Our review of a 1947 survey showed the property was *originally used for dredge-material disposal and is surrounded by a containment levee*. According to your project description, this levee is eroding and requires repairs. Since the levee was built prior to the inception of Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 plus the fact jurisdictional activities that have occurred prior to July 19, 1977, are authorized (grandfathered) by the NWP, the levee is considered to be previously authorized and can be repaired pursuant to NWP 3.

NWP 3 authorizes the repair of a previously-authorized currently-serviceable structure or fill provided the structure or fill is not put to a different use than that for which it was originally constructed. Minor deviations due to changes in construction techniques, materials or the like are authorized.

Please be aware the NWPs were reissued March 19, 2007; however, they are not valid without water quality certification from the Texas Commission on Environmental Quality or Coastal Consistency pursuant to the Texas Coastal Management Plan. As such, the permittee must obtain an individual Section 401 Water Quality Certification and Coastal Zone Management Act consistency determination from the Texas Commission on Environmental Quality (address: Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087).

Exhibit C

COPIES

The following special condition has been added to your authorization:

The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under United States Army Corps of Engineers (USACE) regulations at 33 CFR Part 331. Enclosed you will find a combined Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Southwestern Division Office at the following address:

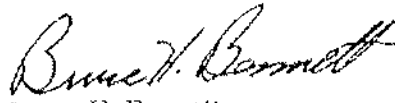
James E. Gilmore, Appeal Review Officer
Southwestern Division, CESWD-CMO-E
1100 Commerce Street, Room 8E9
Dallas, Texas 75242-0216
(Telephone: 469-487-7061; FAX: 469-487-7190)

In order for an RFA to be accepted by USACE, USACE must determine that it is complete, meets the criteria for appeal under 33 CFR Part 331.5, and has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by June 18, 2007. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

The Supreme Court handed down a decision on June 19, 2006, which addressed the scope of CWA jurisdiction over certain waters of the United States including wetlands. In the near future, the EPA and USACE intend to issue joint guidance clarifying CWA jurisdiction in light of the decision. Your permit may be affected by this guidance. However, we are issuing you this permit with its existing terms and conditions and the amount of required compensatory mitigation can be reevaluated based on that new guidance when it is issued.

Please let us know when you complete your project by returning the enclosed preaddressed postcard. If you have any questions concerning this matter, please contact Mr. David Hoth at the letterhead address or by telephone at 409-766-3022.

Sincerely,



Bruce H. Bennett
Leader, North Evaluation Unit

Enclosures

Copy Furnished:

Sonny Stevenson
Parkwood Land Company
2085 Galway Drive
Vidor, Texas 77662-2954

Project 4

Title: **Constructed Wetland Phosphorus Load Reduction Demo for Spavinaw Creek**

Agency: Oklahoma State University

303(d) Listed Waterbody: Lake Eucha, Oklahoma Segment OK121600050070_00

Introduction and Background

The objective of this project is to demonstrate the potential to use an integrated chemical injection and wetland system to reduce nonpoint source phosphorus loads from Spavinaw Creek, which drains into Lake Eucha. This type of constructed treatment wetland combined with a low dose alum injection system can achieve the target reductions at a reasonable capital cost and minimal operating and maintenance costs. The



Figure 1. Lake Eucha/Spavinaw watershed.

Lake Eucha/Spavinaw watershed is located in northeastern Oklahoma and northwestern Arkansas (Figure 1), and includes Hydrologic Unit Codes 11070209050, 11070209040, and 11070209060. Lakes Eucha and Spavinaw serve as principle water supplies for the City of Tulsa, seventeen other municipalities and eleven rural water districts in northeastern Oklahoma. The primary tributary for Lake Eucha is Spavinaw Creek, which drains approximately 350 square miles. Lake Eucha does not support its beneficial uses for Fish and Wildlife Propagation for a Cool Water Aquatic Community or Aesthetics. Causes of non-support include phosphorus and low dissolved oxygen for both lakes. A 2002 Oklahoma Water Resources Board report recommends a 54 percent reduction of total phosphorus to Lake Eucha, which is projected to result in a chlorophyll-a TSI of 50. In addition, the Oklahoma Department of Environmental Quality draft TMDL estimated that phosphorus reduction of up to 95% from nonpoint sources and 90% from point sources may be necessary to restore beneficial use support to the lake. Therefore, significant control measures are required to meet beneficial uses for Lake Eucha. These wetland systems are likely the only cost effective alternative to meet the necessary phosphorus reductions.

According to a 2010 USGS report for the period 2002 through 2009, the total phosphorus load in Spavinaw Creek near Colcord, Oklahoma (071912213) is 72,000 lbs/yr (8900 lbs/yr baseflow, 63,000 lbs/yr high flow). We anticipate a total phosphorus reduction for this demonstration project to be 7,200 lbs/yr or 10 percent at the USGS Colcord gage for a 20 acre wetland or 5% for a 10 acre wetland. This 5 or 10 percent load reduction will complement ongoing reductions from litter export, agricultural best management practice implementation, and point source reductions. These combined pollutant load reductions will improve the overall

water quality of the lakes, reduce risks to human health, and help minimize or eliminate taste and odor issues associated with algae formation and thereby reduce treatment costs. In order to meet the ultimate target phosphorus load reduction and water quality goals, additional wetlands will need to be installed by the City of Tulsa. Due to the exceptional project team members, and high support level from the City of Tulsa, the Tulsa Metropolitan Utility Authority, and the Oklahoma Conservation Commission, this project has an extremely high probability of success.

Low-dose Alum Injected Constructed Wetland

Alum injection for storm water runoff treatment has been used for more than 20 years. Extensive data collected on the water quality and ecological impacts have been conducted with no negative impacts identified. In addition, the cost per lb of P removed is significantly lower than traditional removal systems. Using low-dose alum injection can save an additional 80 percent on the alum cost. In these alum injection systems, stormwater phosphorus removal efficiencies of 85-95% percent have been reported. We expect to design the wetland system to have a

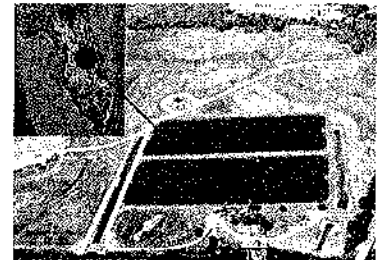


Figure 2. Florida low-dose alum injection wetland system.

removal efficiency of 90 percent. An example of similarly sized system has been installed in central Florida and has been operating since 2002 (Figure 2). The Alum Injection Wetland Example Nutrient Reduction Facility (NuRF) program is part of a water quality improvement effort by the Lake County Water Authority, St. Johns River Water Management District, and the Florida Department of Environmental Protection that uses two nine acre settling ponds and an off-line alum injection to remove phosphorus from Lake Apopka outflow.

We propose to design and construct a 10 or 20 acre wetland that will be planted in common cattail (*Typha latifolia*). The proposed demonstration project will divert Spavinaw Creek surface water flow by gravity through the treatment system and be returned to the stream. Alum will be added to the inflow and the resulting non-colloidal precipitate will settle out in a forebay. The forebay will be designed for periodic cleaning and removal of the solids. These solids will be land-filled or applied as an agricultural soil amendment. The overflow from the forebays will flow through a series of wetland cells (a minimum of two cells) for polishing before being returned to the stream. Harvesting the wetlands annually to remove the phosphorus and recover the biomass will also be evaluated. The treatment system will be designed to treat a portion of moderate high flows from Spavinaw Creek. Initial estimates show diverting an average of 8 cfs into the 20 acre wetland (4 cfs for a 10 acre wetland) with an average flow weighted total phosphorus concentration of 0.44 mg/l (based the USGS 2010 report; 0.44 high flow vs. 0.08 baseflow mg P/l) will meet the 7,200 lbs/yr reduction target (3,600 lbs/yr for a 10 acre wetland). Figure 3 shows the

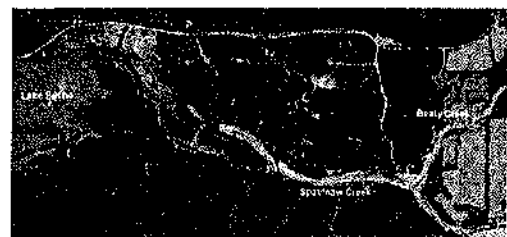


Figure 3. Proposed wetland demonstration location on Spavinaw Creek.

proposed wetland location on Spavinaw Creek, just upstream of Lake Eucha and downstream of the confluence with Beatty Creek.

The wetland system will be monitored for the following constituents: total and dissolved phosphorus, TSS, total aluminum, turbidity, pH, and electrical conductivity. Monitoring sites will be placed on Spavinaw Creek upstream of the wetland, inflow to the wetland at the flow control flume, and at the outflow of wetland. Weekly baseflow samples will be collected as well as flow weighted composite samples during high flow using automatic samplers. Stage will be monitored at the three gaging stations. Due to the lack of infrastructure to measure flow during storm events, the stream stage just upstream of the wetland system will be estimated using computer modeling and upstream USGS gages. In addition, a video camera will be installed to visually document the performance of the wetland during high flow events.

Scope of Work

Task 1 Wetland Demonstration Design

Task 1.1 Preliminary Design. This task will be used as the basis for final design and will include the findings from the biological process analysis, selected removal mechanisms, preliminary constructed treatment wetland (CTW) design, estimated installation costs, and regulatory evaluation. This will include laboratory scale jar tests to determine the optimal (i.e. minimal) alum injection concentrations to determine flocculent settling times and phosphorus removal efficiencies for Spavinaw Creek water. This task will also perform the required hydrologic and hydraulic modeling to support the preliminary design. We will identify additional services necessary to complete final design and regulatory permitting, and will include selection and management of a Professional Land Surveyor for the preparation of a topographic survey that will be used for Final Design development. The preliminary design will evaluate the following components: 1) determine the head available to use gravity flow through the treatment process, 2) determine optimal wetland location, 3) evaluate locations for a diversion structure, a canal or transmission component, and the treatment units, 4) identify availability of utility services, 5) identify potential access points for installation and operation, maintenance, and monitoring activities, 6) evaluate the design requirements of treating base and moderate flows.

Task 1.2 Final Design. This task will include: 1) the preparation of a set of engineering and installation plans and the associated specifications for installation, 2) preparation and submittal of all necessary regulatory permits, and 3) a bid package for solicitation of proposals from interested contractors. We will utilize the Cardno-ENTRIX Oklahoma Licensed Professional Engineer and CAD technicians to prepare a full set of engineered plans in AutoCAD, which may include: Title Sheet, General Notes, Existing Conditions and Demolition Plan, Proposed Grading and Layout Plan, Process Design Schematic, Profiles and Cross Sections, and Details. This task also includes the preparation of the associated specifications that accompany the engineered plan set. We will prepare and submit all regulatory permits necessary to construct and implement the CTW system.

Task 1.3 Installation Certification and OM&M. This task will obtain the Installation Certification and the development of the Operations, Maintenance, and Monitoring (OM&M) Plan for the CTW system. This task includes: 1) coordination with the regulatory agencies and the contractor to obtain final process design related installation certifications associated with the CTW system, 2) preparation of the final As-Built engineering plan set and 3) preparation of the OM&M Plan that will be utilized for continued operation of the CTW system.

Task 2 Installation

Task 2.1 Wetland Installation. The installation phase of the project will include the following primary activities: 1) access road installation, 2) wetland earth moving and berm installation, 3) stream diversion, 4) fore bay installation, 5) wetland flume and alum injection system installation, 6) wetland plantings, and 7) monitoring and gage station installation.

Task 2.2 Installation Oversight. OSU will provide the primary day to day installation oversight, with assistance from BioXDesign and Lithochimeia. In addition, Cardno ENTRIX's Licensed Professional Engineer will conduct a pre-installation and post-installation site visit, will assist remotely with the appointed on-site engineer during installation, and will coordinate with the contractor as necessary to ensure that installation of the CTW system is completed in accordance with the final engineering plan set and specifications.

Task 3 Wetland Monitoring and Performance Evaluation

Three monitoring stations with gages will be installed and operated during the second year of the project. We anticipate monitoring the wetland for 11 months with the later part of the monitoring period providing higher quality data once the wetland becomes more established. We will also be monitoring the mass and chemical composition of the settled solids throughout the monitoring period. A QAPP will be submitted and approved by EPA prior to data collection.

Task 4 Wetland Operation and Maintenance

Once the wetland is installed, operation and maintenance of the wetland will be performed. This will include items such as refilling alum storage containers, wetland berm repairs, access road repairs, and other required items.

Task 5 Education, Outreach and Technical Assistance

Outreach activities will include creation and distribution of a fact sheet and a public workshop. The fact sheet will describe design, operation, and maintenance of wetlands with alum addition for phosphorus and sediment removal and will be available online through the OSU Print on Demand System (PODS) web site (<http://pods.dasnr.okstate.edu/docushare/dsweb/1-HomePage>) and on the OSU Low Impact Development web site (<http://lid.okstate.edu>). A public workshop will be conducted in Tulsa during the installation phase of the project on design and installation of engineered wetlands, with an emphasis on design, operation, and maintenance of alum injection

systems. Mileage compensation for extension educators or other attendees will be provided for up to ten conference participants.

To help promote future use of these wetland systems, the project will provide a design tool, including a user manual, with a user friendly visual basic interface. The tool can be used to design the chemical injection system to optimize phosphorus removal for these wetland systems.

Task 6 Analysis and Final Report

The wetland design and installation, analysis of the monitoring data, operation and maintenance of the wetland, outreach activities, and other aspects of the project will be provided in a detailed comprehensive report.

Project Schedule

Task	Begin Date	Completion Date
1 Wetland Demonstration Design		
1.1 Preliminary Design	September 1, 2012	November 1, 2012
1.2 Final Design	November 1, 2012	January 15, 2013
1.3 Installation Certification and OM&M	November 1, 2012	January 15, 2013
2 Installation		
2.1 Wetland Installation	January 15, 2013	September 1, 2013
2.2 Installation Oversight	January 15, 2013	September 1, 2013
3 Wetland Monitoring & Performance Evaluation	September 1, 2013	August 1, 2014
4 Wetland Operation and Maintenance	September 1, 2013	August 1, 2014
5 Education and Outreach	September 1, 2012	August 31, 2014
6 Analysis and Final Report	September 1, 2013	August 31, 2014

Deliverables

Task Number	Description	Completion Date
1	Wetland Demonstration Final Design	January 15, 2013
6	Final Report	August 31, 2014

Project Team

Dr. Daniel Storm, Dr. Jason Vogel, Dr. Bill Barfield and Professor Sam Harp, all Biosystems Engineers with Oklahoma State University; Dr. Matt Huddleston, Biologist-Wetland Design, and Barry Stuedemann, Wetland Design Engineer, with Cardno ENTRIX; Dr. Bert Fisher, Geochemist, and Larry Hight, Graphics and Data Management, with Lithochimeia; Steve Patterson, Wetland Ecologist, with BioXDesign; and Dr. Alex Horne with Alex Horne Associates, Wetland Design Engineer.

Summary Budget

	Year 1		Year 2		Total
	Federal	State	Federal	State	
Personnel (Salary & Benefits)	\$88,198	\$118,455	\$86,029	\$118,455	\$411,136
Materials & Supplies	\$60,300	\$0	\$44,500	\$0	\$104,800
Travel	\$5,813	\$0	\$5,189	\$0	\$11,002
Equipment	\$15,000	\$0	\$0	\$0	\$15,000
Other	\$274,568	\$2,650	\$5,534	\$2,650	\$277,452
Contractual	\$103,078	\$0	\$38,270	\$0	\$141,348
Total Direct Costs	\$546,957	\$118,455	\$176,872	\$118,455	\$960,738
F&A TDC @11.11%	\$53,171	\$0	\$17,300	\$0	\$70,471
F&A MTDC @45.8% or 38.7%	\$0	\$38,289	\$0	\$38,289	\$76,578
Waived F&A	\$0	\$162,807	\$0	\$53,238	\$216,045
TOTAL	\$600,128	\$319,551	\$194,172	\$209,982	\$1,323,832