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**Stantec**

October 4, 2012

Ms. Beth Regan  
Pattison Sand Company, LLC  
703 1st Street  
Clayton, Iowa 52049

Reference: **Wetland and Waterway Office Determination  
Flansburgh, Marfilius, L. Pulda and E. Pulda Parcels  
Crawford County, Wisconsin  
Stantec Project No. 193701908**

Dear Ms. Regan:

Stantec wetland scientists performed a wetland and waterway office determination and field review at four parcels under consideration for a proposed frac sand mine near Bridgeport, Wisconsin (Figure 1). This report presents the methodology, results and conclusions of the office determination.

### **Purpose of the Assessment**

The purpose of this investigation was to conduct a wetland and waterway office determination and field review at four parcels under consideration for a proposed frac sand mine in Crawford County, Wisconsin. Data from this determination will be used to evaluate potential natural resource constraints and to assist with future regulatory agency consultation.

### **Project Description**

Pattison Sand Co., LLC proposes to mine industrial (frac) sand at four properties located along State Trunk Highway 60 (STH 60) in Bridgeport Township, Crawford County, Wisconsin. Included are the Flansburgh, Marfilius, L. Pulda and E. Pulda properties (Figure 1). The Wisconsin River borders the properties to the south.

As part of the proposed project, material will be removed from the surface mine using conventional equipment such as backhoes and loaders. Activities at the site include: removal and stockpile of overburden, occasional blasting, excavation of material, transfer of excavated materials to a grizzly screen, stockpiling of screened material, return of gravel to excavation space, loading of stockpiled material into trucks, and transport of materials off-site via truck.

No on-site processing of sand will occur. Staged mining and reclamation will occur over the life of each individual mine. Mining activities are tentatively proposed to begin in November 2012 and may occur over a 20 – 60 year timeframe.

## **METHODS**

### **Wetlands**

The U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) define wetland as:

“Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions.”

The initial steps in the wetland determination process included a review of the following documents:

- Natural Resources Conservation Service (NRCS) Soil Survey of Crawford County, Wisconsin (Figures 2a through 2d);
- NRCS list of hydric soil for Crawford County, Wisconsin
- Wisconsin Wetlands Inventory (WWI) Data (Figure 3a through 3d)

These documents provide information on areas that possess a high likelihood of wetlands occurring.

Areas of potential wetland were aerially delineated within the project limits using WWI-indicated wetlands and by interpreting wetness signatures visible on aerial photographs. A wetland signature is the suggestion of wetland hydrology as evidenced by features observable on the aerial photo such as standing water, crop stress (different color or tone), or lack of crop growth (exposed soil within partially cropped area), especially if supported by soil survey data. The uppermost wetland signature or spatial data layer was generally referenced to conservatively draw each wetland boundary shown on Figures 3a through 3d. By means of the described method, Stantec can be reasonably certain that each of the major wetland areas within the study area have been captured. However, the exact extent of each area may be either under- or over-represented to some degree based on the results of a field wetland delineation.

Windshield and limited walking surveys of each property were conducted by Stantec wetland scientists on July 2, 2012; however, no formal wetland delineations were conducted during the field review.

Wetlands (both isolated and non-isolated) are regulated by the Wisconsin Department of Natural Resources (WDNR) under Wisconsin Statute 281 and wetland fill impacts require compliance with NR 103 of the Wisconsin Administrative Code (WAC). Impacts to wetlands with a nexus to waters of the United States are also regulated by the USACE. Both WDNR and USACE compliance require an analysis to avoid and minimize wetland impacts. Depending on the proposed activity and size of the impacts, the project may qualify for a General Permit (GP) or Individual Permit (IP). Generally, impacts greater than 10,000 square feet may qualify for a GP and require mitigation or compensation for wetland impacts.

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## **Waterways**

USGS 1:24,000 Scale Topographic Maps were reviewed for the presence of “blue line” streams within the project area. Streams mapped with “blue lines” depict either perennial or intermittent waterways. General stream characteristics were assessed in the field; however, formal navigability determinations were not made on the day of the fieldwork.

Streams are regulated by the WDNR under Chapter 30 of the WAC. The State of Wisconsin defines a “navigable waterway” as any body of water with a defined bed and bank, which is navigable under the laws of the state. In Wisconsin, a navigable body of water is capable of floating the lightest boat or skiff used for recreation or any other purpose on a regularly recurring basis. Chapter 30 permits are required to alter navigable stream channels below the ordinary high water mark (OHWM) or adjacent lands. The final authority regarding stream navigability and OHWM elevation is determined by the WDNR and requires a field assessment and formal navigability determination by WDNR.

Streams are also regulated by a local County Shoreland Zoning Ordinance enforced by the County Zoning Department. County ordinances regulate activities within 300 feet of a navigable stream and 1,000 feet of a navigable lake. Shoreland zoning permits are required for activities proposed within the shoreland zone.

## **RESULTS**

### Flansburgh Parcel

Land use at the Flansburgh parcel consists primarily of agricultural lands, including corn and alfalfa fields and heavily grazed pasture, and a mix of upland deciduous and floodplain forest. Tree species observed in the upland forest communities include red oak (*Quercus rubra*), white oak (*Quercus alba*), slippery elm (*Ulmus rubra*) and black walnut (*Juglans nigra*). Tree species observed in the floodplain, located immediately north of the existing railroad line at the south edge of the site, include silver maple (*Acer saccharinum*), box elder (*Acer negundo*), eastern cottonwood (*Populus deltoides*) and American elm (*Ulmus americana*).

Soil types present within the parcel limits are shown on Figure 2a. Mapped hydric soil is found associated with the drainageways found on the property. Two constructed farm ponds were identified within the parcel limits (Figure 3a). Potential wetland areas were identified within the banks of two drainageways that flow south toward the Wisconsin River. In addition, WWI data indicate a large broad-leaved forested wetland (T3Kw; Figure 3a) at the south edge of the property. This area was field confirmed to be wetland during walking surveys of the parcel. Based on the current project plan no wetland on this parcel would not be impacted by the project.

Three waterways within the parcel limits are identified as intermittent streams (Figure 3a). Each waterway had a defined bed, bank and was actively sorting sediment on the day of the fieldwork. Water flow within these streams is from northeast to south toward the Wisconsin River. Based on the field review, these streams would be considered navigable and regulated by Chapter 30. Based on the current project plan, these streams would not be impacted by the project.

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### Marfilius Parcel

Land use at the Marfilius parcel consists primarily of agricultural lands (i.e., rowcrops) and pasture. Upland deciduous forest communities are scattered throughout the site and consist primarily of red oak, white oak and black walnut. Limited numbers of silver maple were observed, primarily along the parcel boundaries.

Soil types present within the parcel limits are shown on Figure 2b. One area of mapped hydric soil is found near the northeast corner of the parcel. No wetlands, farm ponds or other water bodies were observed within the parcel limits. WWI maps do not indicate any wetland on the property.

One waterway within the parcel limits is identified as an intermittent stream (Figure 3b); however, no bed or bank was observed during the field review. Based on the conditions observed during field review, this stream does not appear to meet navigability criteria and would not be regulated by Chapter 30. In addition, based on the current project plan, this stream would not be impacted by the project.

### L. Pulda Parcel

Land use at the L. Pulda property consists primarily of agricultural lands (i.e., rowcrops and alfalfa) and limited pasture. The southern half of the property contains an upland deciduous forest community dominated by hackberry (*Celtis occidentalis*), red oak, white oak, black cherry, mulberry (*Morus sp.*) and scattered shagbark hickory (*Carya ovata*).

Soil types present within the parcel limits are shown on Figure 2c. One area of mapped hydric soil is found near the southwest corner of the parcel associated with a drainageway. No wetlands were identified within the parcel limits and WWI maps indicate no wetland on the property (Figure 3c).

One waterway within the parcel limits is identified as an intermittent stream (Figure 3c). Based on the current project plan, this waterway would not be impacted by the project

### E. Pulda Parcel

Land use on the E. Pulda parcel consists primarily of upland deciduous forest, with some floodplain forest found along the southern edge of the property. The remainder of the property is used for agriculture (i.e., rowcrops).

Soil types present within the parcel limits are shown on Figure 2d. Mapped hydric soil is found on the parcel associated with the Wisconsin River. One aerially delineated potential forested wetland community, approximately 2.2 acres in size, is located along the south edge of the parcel (Figure 3d). This area was verified to be wetland during the field review, but the field boundary was not delineated. WWI maps indicate a broad-leaved forested wetland (T3k) in the vicinity of this wetland (Figure 3d). Based on the current project plan, this wetland would not be impacted by the proposed project.

No streams are mapped within the parcel limits (Figure 3d) and none were observed during the field review.

## **CONCLUSIONS AND RECOMMENDATIONS**

The conclusions and recommendations presented below are based on the current project plan as of the date of this report. If project plans should change resulting in a potential impact to wetlands or waterways, it is recommended that a formal wetland delineation and/or coordination with the WDNR be conducted, and a WDNR navigability determination be requested for any waterway that will be impacted by the project.

### Flansburgh Parcel

- Approximately 25.4 acres of potential wetland and two farm ponds were aerially delineated with the Flansbaugh parcel.
- Based on the current project plan, no wetland would be impacted by the proposed mining activities on this parcel.
- Three waterways within the parcel limits are identified as intermittent streams. Based on the current project plan, these waterways would not be impacted by the project.

### Marfilius Parcel

- No wetland, farm ponds or other waterbodies were observed on the Marfilius parcel.
- One waterway within the parcel limits is identified as an intermittent stream; however, no bed, bank or ordinary high water mark was observed at this location. Based on the current project plan, this waterway would not be impacted by the project.

### L. Pulda Parcel

- No wetlands were identified on the L. Pulda parcel.
- No farm ponds were observed within the parcel boundary.
- One waterway within the parcel limits is identified as an intermittent stream.
- Based on the current project plan, this waterway would not be impacted by the proposed mining activities.

### E. Pulda Parcel

- One forested wetland was aerially delineated and field verified on the E. Pulda parcel within the floodplain of the Wisconsin River. No farm ponds were observed within the parcel boundary
- Based on the current project plan, the forested wetland would not be impacted by the proposed mining activities on this parcel.

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- No streams are mapped within the parcel limits (Figure 3d) and none were observed during the field review.

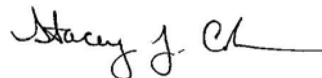
If you have any questions, or need additional information, please feel free to contact our office at 319-334-3755.

Sincerely,

**STANTEC CONSULTING SERVICES INC.**



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