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October 22, 2004

Tracey Balint
City of Rochester Hills
1000 Rochester Hills Dr
Rochester Hills, MI 48309

RE: Great Oaks Country Club Stream and Pond Restoration
Section 114-159 Approval Items
City File # 95-031.1
Rochester Hills, Michigan

Dear Ms. Balint:

As requested, we have prepared a response for the items identified in the City of Rochester Hills Ordinance Section 114-159 (c).

(c) *A resolution of approval shall be adopted by the city council it is determines that the proposed use would be consistent with the public health, safety and welfare after considering the following factors:*

(1) *Private or community need for the proposed facility or use;*

The Great Oaks Country Club has identified areas of severe erosion along Sargent Creek on there property and have identified the need to reduce the depth, duration and frequency of flooding on their property. The proposed project will address these on site erosion and flooding issues.

These improvements will also provide benefit to other riparian landowners along Sargent Creek. Landowners immediately upstream will see some reduction in the depth, duration and frequency of flooding. Downstream residents should see a reduction in sediment transport currently occurring due to the erosion of stream banks on the Great Oaks property.

(2) *Importance of Proposed Waterfront Location;*

The identified erosion and flooding problems on Sargent Creek can only be addressed by doing work within the Creek. Fieldstone Riprap will be placed along stream banks at the site of the erosion, culverts will be added to improve the hydraulic efficiency through the golf course and weir control structures will be improved to provide some additional hydraulic capacity.

(3) *Alternate Locations not Subject to Flooding;*

The proposed project will not include any habitable structures and will not therefore place any additional buildings or personnel at risk of flooding. The proposed project will actually serve to reduce the amount of flooding currently occurring at and upstream of the golf course. As previously stated the proposed work items will need to be constructed within the Sargent Creek.

Principals: Dale K. Deibel, P.E., James J. Cook, Ronald B. Hansen, P.E., Mark A. Latsch, P.E., Shawn P. Middleton, P.E.,
Larry J. Protasiewicz, P.E., Donald R. Scherzer, Jeffrey E. Wood, P.S.,

Senior Associates: Robert R. Eggers, AICP, Charles W. McDonald, Patrick A. Tagget, CPA, Darryll L. Sundberg, P.E., Wayne A. Zolnierek, P.E.,

Associates: Marshall A. Bilodeau, Kim J. Donaghy, CET, Darrick W. Huff, P.E., Jean M. Inman, P.E., Tim A. Inman, P.E., Roger P. Mahoney, P.S., John E. Olson, P.E.

(4) *Compatibility with existing and proposed floodplain development and use;*

The current land use at this location is an open space golf course. There is no intent to change the proposed land use at this site. As you are aware, golf courses are an ideal land use for floodplains since they do not require building structures to be constructed within the floodplain and though not desired, can handle temporary flooding. Therefore, the proposed work to enhance the golf course is compatible with existing and proposed floodplain development and use.

(5) *Relationship to comprehensive plans and the floodplain management program;*

As stated above golf courses are ideal uses of the natural floodplain. These improvements will help to improve the conveyance of storm water through the golf course and reduce on site erosion. The proposed work does not have any adverse relationship to comprehensive plans or the floodplain management program.

(6) *Environmental Compatibility;*

The proposed project will stabilize existing stream banks which are severely eroded. The project will also stabilize current "down cutting" of the stream. Stabilizing these erosion sources will reduce or eliminate the transport of sediments from the Great Oaks site downstream.

(7) *Danger to life and property due to increased flood heights or velocities caused by encroachments;*

The proposed project will not be encroaching on the existing floodplain. In fact, the proposed project intends to reduce flood heights and velocities by providing additional culvert capacity, additional weir capacity and providing the ability to provide emergency weir capacity through the use of removable stop log weirs.

(8) *Danger from materials swept downstream;*

At the completion of the project there will not be any additional materials within the floodplain that would be subject to being swept downstream. During construction care will be taken to keep all potential items that could be swept downstream out of the floodplain.

(9) *Ability of public utilities to function during floods and the prevention of disease and contamination;*

The proposed project will have no impact on the ability of utilities to function during floods and will not cause or impact the prevent of disease and contamination.

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(10) *The susceptibility of the proposed facility and its contents to flood damage;*

The proposed work will not include any buildings or structures that would be susceptible to flooding.

(11) *Potential flood heights, velocities, duration, rate of rise, and sediment transport;*

A detailed HEC-RAS analysis has been completed and summarizes the impacts of the proposed work on existing flood heights, velocities, duration, rate of rise and sediment transport. Please refer to the submitted hydraulic analysis for detailed results. The proposed work will serve to reduce flood heights, stream velocities, rates of rise and sediment transport both on site and to adjacent riparian landowners.

(12) *Accessibility to ordinary and emergency vehicles;*

There will be no impact on the accessibility to ordinary and emergency vehicles.

(13) *Such other factors as may be relevant to the proposed use and the purpose of this article.*

We are not aware of any other factors that may be relevant to the proposed use or to the purpose of this article.

If you have any questions or need further information please call.

Sincerely,

SPICER GROUP, INC.



Shawn P. Middleton, P.E.

Project Manager

cc: Tom Bennett, Wetland and Coastal Resources Inc..
Mike Nurse, Wetland and Coastal Resources, Inc.
Keith Depp, City of Rochester Hills (Enclosure)
David Grake, Great Oaks
SGI File No. 108060.04 (Enclosure)