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December 2, 2009

Mr. Brian Postlewaite, P.E.
Symmes Maini & McKee Associates, Inc.
1000 Massachusetts Avenue
Cambridge, MA 02138

**Re: Preliminary Wetland Assessment
Grafton High School Site, 30 Providence Road
Grafton, Massachusetts**

Dear Brian:

As requested, AECOM has conducted a preliminary assessment of the potential presence and extent of wetland resource areas and additional environmental constraints at the above-referenced site. We utilized the general site plan, drawn by your office dated 7-22-09 in our review. As indicated on that plan, the potential development site envelope is limited to the area currently developed by the Grafton School and recreational fields. Wetland resource areas of Bank and Bordering Vegetated Wetlands (BVW) were found to be associated with Lake Ripple. The property to the southwest of the existing track and field area was also delineated to show the extent of the 200-foot Riverfront Resource Area (RRA) onto the recreational fields from the Quinsigamond River.

Field efforts conducted for the characterization of wetland resource areas included delineation of all wetland resource areas subject to protection under the Massachusetts Wetlands Protection Act (WPA) (M.G.L. Ch. 131 § 40) and its accompanying Regulations (310 CMR 10.00), and section 404 of the federal Clean Water Act. AECOM used a multi-parameter methodology, which incorporates the presence of hydric soils, dominance of hydrophytic vegetation, and other indicators of hydrology to determine the limits of state and federal jurisdictional wetlands. MA DEP Bordering Vegetated Wetland (310 CMR 10.55) data sheets representative of the delineation are attached to this preliminary assessment report.

Wetland Resource Areas:

Wetland A / Lake Ripple

Jurisdictional wetland areas associated with Lake Ripple were observed and delineated in the field using sequentially placed surveyor's tape. Area A is associated with the BVW typically found as a fringe highly dominated by pepperbush (*Clethra alnifolia*) along the lake. The wetland is flagged in the field from A-1 to A-99. BVW flag A1 starts at the entrance to the school off of Providence Road. The flagging continues around Lake Ripple to the outlet region ending with A-99.

The Scrub-shrub wetland associated with the Pond is generally dominated by woody species with a dense shrub layer. A significant herbaceous layer was not apparent due to the dense shading from the dense shrub and tree layer. The dominant woody species throughout the wetland areas in addition to pepperbush include red maple (*Acer rubrum*), and highbush blueberry (*Vaccinium*

corymbosum) and winterberry (*Ilex verticillata*). The less dominant woody species found at the wetland transition zone and within the wetland itself included gray birch (*Betula populifolia*), willow (*Salix* sp.), arrowwood (*Viburnum recognitum*), autumn olive (*Elaeagnus umbellata*), white pine (*Pinus strobes*), white ash (*Fraxinus americana*), black cherry (*Betula populifolia*) and red oak (*Quercus rubra*).

The associated Bank of Lake Ripple was flagged as a separate delineation or resource area due to the extensive wetland shrub complex. The Bank associated with wetland area A starts adjacent to BVW flag A-1 with Bank flag BK-1 at the entrance to the school off of Providence Road. Bank flags continue to follow downslope from the BVW flags, ending within BVW series A with Bank flag BK-100 located at the east side of the concrete dam structure to the lake. The Bank associated with the lake was found to be well defined and only slightly higher than mean annual low conditions due to the wide crest length of the dam control structure in relation to the Lake's size preventing significant higher mean annual flows. The resulting limited elevation increase from mean annual high flows has resulted in a well defined first observable break in slope only slightly higher than the dam's current outlet elevation.

Wetland B / Quinsigamond River

Off-site jurisdictional wetland areas associated with the Quinsigamond River were also delineated in the field using sequentially placed surveyor's tape. A portion of the Quinsigamond's Riverfront Resource Area approaches the project recreational fields along this area. As a result, the off-site location of Bank and associated BVW were delineated.

The Scrub-shrub wetland associated with the river is generally dominated by woody tree and shrub species with a more pronounced herbaceous layer in comparison to the lake. The dominant woody species throughout the wetland area includes pepperbush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), speckled alder (*Alnus regosa*), winterberry (*Ilex verticillata*) silky dogwood (*Cornus amomum*) and red maple (*Acer rubrum*). The less dominant woody species found at the wetland transition zone and within the wetland itself included gray birch (*Betula populifolia*), common elderberry (*Sambucus canadensis*), arrowwood (*Viburnum recognitum*), autumn olive (*Elaeagnus umbellata*), white ash (*Fraxinus americana*), black cherry (*Betula populifolia*) and red oak (*Quercus rubra*). The dominant herbaceous species found throughout this area include sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), jewelweed (*Impatiens capensis*), poison ivy (*Toxicodendron radicans*), and skunk cabbage (*Symplocarpus foetidus*).

The Bank at this region was found to be well defined and was flagged starting with BK-101 and is the continuation of the bank delineation at the outlet structure to the lake. The Bank flagging ends with flag BK-109 in close proximity to a granite boundary marker that borders a private residence along the river. The BVW, Bank and associated buffer zone and Riverfront Resource Area associated with the Quinsigamond River continue away from the site through the private residence property. Eventually, the private residence ends with the Brigham Hill Road bridge to the west where buffer zones and resource areas are no longer in close proximity to the site boundaries of Grafton High School.

Additional Constraints:

The most recent Federal Emergency Management Agency (FEMA) mapping (Community-Panel 250306 0003 D, revised September 30, 1992) for the site designates the fringe of Lake Ripple and the Quinsigamond River as having associated floodplain. The 100-Year Floodplain for Lake Ripple is classified as Zone AE. This zone has designated base flood elevations that have been determined. The 100-Year elevation for Lake Ripple has been determined to be at elevation 308. The 100-Year floodzone for the Quinsigamond River, adjacent to the site, has been determined to have an associated floodzone elevation of 300.

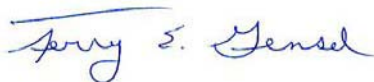
According to the 13th Edition Heritage Atlas (October 1, 2008) prepared by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), the site is located within an area of Priority Habitat of Rare Species. There are no certified vernal pools located on or near the site. The NHESP polygon (PH 1148) identifies the outlet location of Lake Ripple and the downstream Quinsigamond River as being within the priority habitat. The polygon also encompasses a minor portion of the recreational field region. As a result, the project's proposed redevelopment may fall within this Priority Habitat. Since the project does not meet a MESA filing exemption (321 CMR 10.14), the project must file directly with the NHESP pursuant to MESA for review of potential impacts and mitigation measures.

MassGIS environmental data for DEP Water supply areas and DCR Areas of Critical Environmental Concern (ACEC) were also investigated for the site. A portion of the site within the recreational fields was found to be within a Zone II region. ACEC mapped areas in the region were found to be associated with the Miscoe, Warren, and Whitehall watersheds and are limited to the eastern side of the town of Grafton and outside of the property limits.

The MA DEP MassGIS wetlands data does not indicate any additional regulated wetlands on or within 100-feet of the property limits in addition to the wetland resources associated with Lake Ripple and the Quinsigamond River. Lake Ripple has been designated as open water and the Quinsigamond River directly below the outlet region of the lake has been mapped with associated wooded swamp deciduous wetlands. The region of the Quinsigamond River delineated in the field is representative of this MA DEP mapped area for wetland resources.

Please let me know if you have further questions regarding this site.

Sincerely,
AECOM



Terry E. Gensel
Senior Wetland Scientist

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Grafton School Prepared by: Terry Gensel Project Location: 30 Providence Rd DEP File #: _____

Check all that apply:

Sample location 50A Region Steep slope of lake fringe found throughout wetland area A.

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
 Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: 1-Wet Transect Number: N/A Date: 10/26/08

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
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Tree:

Red maple - <i>Acer rubrum</i>	85.5%	63.8%	Yes	Fac*
Gray Birch - <i>Betula populifolia</i>	10.5%	7.8%	No	Fac*
Northern Red Oak - <i>Quercus rubra</i>	38.0%	28.4%	Yes	FacU-

Shrub:

Pepperbush - <i>Clethra alnifolia</i>	63.0%	75.0%	Yes	Fac+*
Highbush Blueberry - <i>Vaccinium corymbosum</i>	10.5%	12.5%	No	FacW-*
Winterberry - <i>Ilex verticillata</i>	10.5%	12.5%	No	FacW+

Sapling:

Red maple - <i>Acer rubrum</i>	20.5%	66.1%	Yes	Fac*
White Ash - <i>Fraxinus americana</i>	10.5%	33.9%	No	FacU

NOTE: No Herbaceous cover due to dense shading of mature trees and shrub growth on slope.

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, 40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, OR OBL; or plants with physiological or morphological adaptation. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetative conclusion:

Number of dominate Wetland Indicator Plants: **3** Number of Dominant non-wetland indicator plants: **1**
 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Grafton School Prepared by: Terry Gensel Project Location: 30 Providence Rd DEP File #: _____

Check all that apply:

Sample Location 10B region wetland/floodzone area of Quinsigamond River.

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
 Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: 2-hydric Transect Number: N/A Date: 6/30/09

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Tree:				
Red Maple – <i>Acer Rubrum</i>	98.0%	100%	Yes	Fac*
Shrub:				
Pepperbush – <i>Clethra alnifolia</i>	38.0%	52.0%	Yes	Fac+*
Highbush Blueberry – <i>Vaccinium corymbosum</i>	10.5%	14.6%	No	FacW-*
Common Elderberry – <i>Sambucus canadensis</i>	3.0%	4.2%	No	FacW-*
Speckled Alder – <i>Alnus regosa</i>	20.5%	28.5%	Yes	FacW+*
Herbaceous:				
Jewelweed – <i>Impatiens capensis</i>	38.0%	39.2%	Yes	FacW*
Poison Ivy – <i>Toxicodendron radicans</i>	10.5%	10.8%	No	Fac*
Skunk Cabbage – <i>Symplocarpus foetidus</i>	38.0%	39.2%	Yes	Obl*
Sensitive Fern – <i>Onoclea sensibilis</i>	10.5%	10.8%	No	FacW*

Note: Cover ranges were used for observation plots on the site.

Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, 40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, OR OBL; or plants with physiological or morphological adaptation. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetative conclusion:

Number of dominate Wetland Indicator Plants: **5** Number of Dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes no If
vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent. MA DEP: 3/95