Exhibit 2 [Part 1]

(Report of John Field, December 26, 2013)

Field Geology Services

December 26, 2013

Via Electronic Mail

Kelly Martin Malone, Esq.
Donovan Hatem LLP
53 State Street
Boston, MA 02109

Re: Town of Wolfeboro v. Wright-Pierce, Inc.
Docket Number: 1:12-CV-00130-JD
DH File No. 25722.6

Dear Ms. Malone:

At your request I have reviewed background information and conducted a site visit to assess the wetland impacts of a Rapid Infiltration Basin system (RIB) located in Wolfeboro, NH. I also assessed the need for mitigation measures. My site visit with Bill Brown of Wright-Pierce occurred on December 13, 2013. My field observations were limited to the Western Wetland area located in Tuftonboro. I did not access the portion of the site located in Wolfeboro. This letter shall serve as a memorandum discussing recommendations for addressing the wetland impacts I observed. The discussion of existing conditions and recommendations provided below are based on my site visit, review of documents associated with the development and operation of the RIB, and over 25 years of professional experience in fluvial geomorphology.

On my site visit I observed increased channelization of the Western Wetland, presumably due to the increased flow through this wetland caused by the RIB operation. These types of morphological adjustments of wetlands and streams are not uncommon in situations where there is an increase in flow. Flow increases can be caused by a variety of factors such as increased development within a watershed, logging of wooded watersheds, increased peak runoff events due to climate change, or groundwater recharge with wastewater effluent, as is the situation here. Operation of the RIB began on March 3, 2009 with increased channelization of the wetland noticed thereafter. The potential impact of the channelization to the integrity of the wetland and increase in sediment loading downstream are of concern to the New Hampshire Department of Environmental Services (DES), so the goal of the proposed remedial action detailed below is to halt or reverse the channelization process and reduce downstream sediment loading.

At present, narrow discontinuous channels are being incised into a broad sloping swale that leads to the wetland area observed during the site visit (Figure 1). The channel incision has occurred downstream of where groundwater flow, in part contributed from the RIB, seeps out of the steep valley side slopes at the margins of the swale and wetland. Upstream of the influence of the RIB no incision has occurred and the swale remains unchannelized. The soils beneath the swale and wetland surface are sandy and the channelization downstream of the RIB's influence

appears to be initiated first by the movement of sand in the subsurface and ultimate collapse of the overlying soil to form a channel. The resulting concentration of surface flow into the developing channels leads to their widening and growth. The amount of channel incision and widening varies through the swale and wetland. In steeper areas, channel incision and widening has progressed further than in lower gradient portions of the wetland where no well-defined channel has developed. Poor channel development also occurs, even on steeper slopes, where shrubs and trees fall into the channel at the time of the initial surface collapse and channel initiation. In areas of poor channel development, flow either spreads out over the wetland surface or percolates back into the ground. The subsurface flow may once again initiate channel development in new areas.

Over time, without remedial action, channel development would continue until the channel widens to a point where the channel's size is in equilibrium with peak discharges. A heavy rainfall focused on the small watershed draining to the swale and wetland could produce a peak discharge sufficient to enlarge the channel, as could increases in the amount of seepage flow emanating from the RIB. A reduction in peak flow would result in channel equilibrium being reached more quickly and result in a smaller sized channel than would develop with higher peak discharges. In addition to the channel dimensions adjusting to the dominant peak discharge, the discontinuous segments of channel currently present in the swale and wetland area are likely to become integrated into a continuous channel over time, although low gradient portions of the wetland are not likely to develop a well defined channel without a significant increase in seepage discharge from the RIB or a heavy rainfall event.

Sediment derived from the channel incision and widening as well as from slope failures on the adjacent steep valley side slopes (and discussed in greater detail in Haley and Aldrich's August 16, 2013 memo) has increased sediment loading downstream. A sediment trap built upstream of the culvert under the RIB access road continues to collect sediment with a delta forming at its upstream end (Figure 2). As the channelization of the swale and wetland progresses towards an equilibrium condition, the amount of sediment transported downstream will decline in concert with a reduction in the rate of channel widening. However, even as an equilibrium condition is approached, sediment will continue to move through the channel at a greater rate than if the swale and wetland were unincised.

Channel morphology (i.e., the size and shape of the channel) is largely controlled by discharge, slope, and roughness (i.e., the amount of friction encountered by obstructions in the channel). Increased channelization has most likely resulted at the site from increased discharge through the swale and wetland, but has not occurred or has been limited where the slope is lower or roughness greater (e.g., where vegetation has collapsed into the channel). While altering slope is not a practical remedial action, increasing channel roughness through the addition of felled trees into the channel and onto the floodplain could effectively lead to the accumulation of sediment in the channel and reversal of the channelization process, potentially returning the swale and wetland to an unchannelized condition. The rate at which the "healing" process will occur will be dependent on the amount of sediment moving through the site and the frequency of discharges large enough to transport the sediment. Given the sand load present in the system, a relatively quick response time, measured in years rather than decades, is likely.

Wood additions in channels is a common practice in northern New England to improve aquatic habitat along streams where wood was previously removed decades ago during log drives and flood control efforts. The technique for adding wood to channels is often referred to as "chop and drop" since the wood is often added by directionally felling trees with a chainsaw (Figure 3), so they fall into the channel (Figure 4). Usually large anchor trees that are unlikely to move are spaced along the treated reach with smaller logs, tree tops, and branches placed in between, so as the smaller pieces move during subsequent high flows they are trapped behind the larger trees to form jams, steps, pools, and other beneficial habitat features (Figure 5). Another consequence of the wood additions, and most germane to the site discussed here, is the considerable sediment that is deposited and stored within reaches treated with the chop and drop method (Figure 6).

The chop and drop technique has been permitted by environmental agencies, and implemented in New Hampshire, Vermont, and Maine numerous times. The Green Mountain National Forest in Vermont has completed several chop and drop projects over the past 20 years and has documented their success (see http://na.fs.fed.us/stewardship/pubs/misc/restoring_brook_trout_habitat.pdf). Although most chop and drop projects have been completed on mountain streams larger than the Wolfeboro, NH site, some projects have been permitted and implemented in wetland areas in the low-gradient New Hampshire seacoast region.

The project site in Wolfeboro, NH is an excellent location for implementing the chop and drop technique. Numerous trees of varying size are located along the edge of the developing channels that could be felled as part of the remedial efforts (Figure 1). If desired (but possibly unnecessary), an excavator could also be brought in on the nearby access road to more carefully place the felled (or imported) trees to ensure the logs rest directly on the channel bottom to accelerate the channel response. The documented response of chop and drop projects elsewhere (e.g., accumulation of sediment and reconnection to adjacent floodplain/wetland areas) is consistent with the project goals of reducing downstream sediment loading and reversing the incision and channelization process. As sediment begins to accumulate in the channel and flow begins to more readily flow across the original swale and wetland surface, the potential for new channels to develop exists. Consequently, wood should also be placed on these surfaces to keep flow from reincising new channels – a typical practice in other chop and drop projects. The added roughness created by the introduction of the wood into the developing channels should essentially counter the tendency for channelization resulting from the increased discharge and ultimately return the swale and wetland to an unchannelized condition.

The focus of my evaluation was the Western Wetland. Based on a review of photographs of the other wetland areas located on the Wolfeboro, NH portion of the site, these other areas appear less significantly impacted. However, these other areas may well benefit from similar remediation measures. Ultimately, a site visit of these other areas would be helpful to finalize recommendations for these areas.

I also understand that in addition to the wetland mitigation measures, there are slope stability mitigation measures proposed that will restore slope stability and make groundwater discharges more diffuse in these locations. These improvements would be compatible with the suggested wetlands mitigation measures outlined herein.

In conclusion, impacts to the wetlands due to the increased flow from the RIB can be mitigated. Please let me know if you have further questions regarding the proposed wood addition treatment at the project site. Details regarding the exact number and placement of trees would be perhaps best discussed at an on-site meeting with all interested parties before completing any required permit applications. The permit process should be relatively uncomplicated given the use of natural materials and DES's previous experience with similar projects.

Sincerely,

John Field, PhD

Enclosures

cc: William Brown
Peter Atherton