DEPARTMENT OF
WATER AND SEWER UTILITIES

Town of
Wolfeboro

February 12, 2010

Tuftonboro Board of Selectmen
Tuftonboro Conservation Commission
Town Office Building - PO Box 98
Center Tuftonboro, NH 03816

Subject: Wolfeboro Rapid Infiltration Basin Site
Response to January 27, 2010 Letter

Dear BOS and TCC:

The Town is in receipt of your letter/report dated 1-27-2010 detailing the Town of Tuftonboro's concerns over the operation of Wolfeboro's Treated Effluent Disposal System, also known as Rapid Infiltration Basins (RIB). We are also in receipt of the Algae Study, dated November 2009 and the 19 Mile Brook, Stream Gaging Program, dated December 2009. Like Tuftonboro, Wolfeboro remains concerned about the long term impact of the RIB system on the surrounding land and water resources and has committed to going beyond permit requirements in monitoring these impacts and will continue to do so. In that manner, we also welcome the Town of Tuftonboro's Conservation Commission efforts in studying and commenting on the condition of the Nineteen Mile Brook watershed. The Town is committed to working collaboratively with Tuftonboro to address the issues.

However, while there are many points and data that we agree on, there are a few of your conclusions, statements and use of Town statements that we do not agree with or believe are being taken out of context. I would like to take the opportunity in this letter to make these clarifications. That being said, the Town does not want to understate the concerns both Towns have regarding the short and long term impacts of the RIB operation.

Points of Clarification:

IMPACT: The NHDES issued a FONSI for the project (finding of no significant impact), and the RIB project was discussed as the best governing solution. While the Town of Tuftonboro might not have agreed with New Hampshire Department of Environmental Services (NHDES), they are the governing body that permitted the site and have oversight responsibilities. The NHDES reviewed Wright-Pierce Engineers studies, field work, reports and engineering in their approval of the Groundwater Permit for the RIB site. In these documents it was and is clear there would be some environmental impact, including an increase in flow and nitrate loading. These impacts included:

- An increase in the base flow of Nineteen Mile Brook up to 600,000 gallons per day [Note: over the first 11 months, we have averaged just under 400,000 gallons per day (GPD) or .6 cubic feet per second (CFS)]

- An increase in Nitrate loading of up to 7 to 8 mg/l in the Treated Effluent that reached the Brook. [Note: to date the highest Total Nitrogen (TN) level sampled and tested was in the range of 2.2 and 2.3 mg/l in upper wetland area breakout locations labeled 19 MB#8 and #10. The level of TN in the lower reaches of these wetland areas just before the discharge to Nineteen Mile Brook were 1.3 and 1.6 mg/l respectively].

MISQUOTED: In your letter you state:

- *The Wolfeboro PWD August 12, 2009 Action Plan...concluded: "environmental impacts are being avoided through the process of re-infiltration from seeps"*
- *The TCC disagrees with the conclusion that "environmental impacts are being avoided".*

I believe the TCC has misquoted the letter in both of the statements above. My statement made in the first paragraph of that letter was, "Based on this data we feel it is evident that even though we have experienced unexpected issues, the operation of the Rapid Infiltration Basin Site has had no significant environmental impact on surrounding groundwater and surface waters". When I use the term "no significant environmental impact" it is relative to the FONSI as used by NHDES in the permit review process. While I understand and respect that you might have a differing opinion on what constitutes a significant environmental impact, you have misquoted me in your letter.

Second, in my closing paragraph of the referenced letter, I make the statement that, "...we are compliant with its Groundwater Discharge Permit and in many cases is having less on an environmental impact than predicted by studies used to permit the site." This statement is based on the data collected in relation to the Groundwater Permit and studies submitted to support the permit application (see the first 2 bullets above). I do not believe I have ever made or written the statement that, "environmental impacts are being avoided". It is clear that there were predicted impacts and there have been unexpected issues, but these impacts have not risen to the level of being categorized as "significant". That being said the Town does share your concern of the unexpected issues and will continue to monitor and evaluate.

FALSE CHARGES: In your letter you have charged me with providing a message to the media that is erroneous and misleading regarding the operation of the RIB site. I am disappointed in your use of these terms and take exception to them. The facts are:

1- The Town is and has been compliant with its Groundwater Permit

2- Flow and Nitrate impacts are lower than permitted and predicted

3- The RIBS are operational and functional. After 11 months of operation at an average flow of just under 400,000 gallons per day, the infiltration beds are absorbing the treated water as expected, groundwater mounding beneath the beds is as expected, and groundwater and surface water quality around the site is well below permit limits.

However, we have experienced these unexpected issues and they do concern us as they do you. As a Professional Engineer and Director of Public Works I have the responsibility to protect the health and welfare of the public and I take this responsibility seriously. I feel it is important to not over react to unexpected issues as they occur often in my business and I stand by my message and strongly disagree with your charges that this message was erroneous and misleading. You might not have been aware of the predicted impacts of the permitted RIB site and the opinion of NHDES that even with the predicted impacts that the project had a finding of no significant impact. Now that you have been made aware of these facts, I would hope you better understand my statements, the context in which they were made and might reconsider your charges against me.

ALSO NOTE:

- Wright-Pierce Engineers is the engineer of record (Peter Atherton) and not Woodard & Curran.
- Woodard & Curran is the Town's Contract Operator.
- The RIB site was started on March 3, 2009, not February 9, 2009.
- In response to noted observations during the first year of operation and with a strong recommendation from NHDES the Town decided to construct 2 additional RIBs.
- Additional RIB construction was approved by NHDES and is under construction, with an expected start up this summer
- While the 2 new basins add 50 % more surface area, we have not requested an increase in loading to the site.

ADDITIONAL ISSUES: I would also like to take this opportunity to inform the Town of Tuftonboro that we have experienced another "Unexpected Issue (UI)". To date we have had: UI#1- slope failure on or about 4-23-09; UI#2- Sink Hole and soil piping on or about 6-6-09; and now we have UI#3- Increased flow and fine sand migration at 19MB-8 sampling location, previous labeled as natural spring. I have attached a field report on UI#3, dated 1/20/10, prepared by Weston and Sampson Engineers, another of the Town's consultants. I have also had this area reviewed by Woodard & Curran to provide an opinion on the potential ecological effect of the unexpected issues.

I have requested Wright-Pierce Engineers to respond to your letter and have attached a copy for your review.

I would like to close this letter with a sincere appreciation for the Town of Tuftonboro's efforts and concerns. While I do not agree with some of your conclusions, hence this letter of clarification, I would like to meet with you in an effort to have open dialogue as we move forward in resolving our mutual concerns and discuss other suggestions brought up in your letter. We do not have to agree on every item, but I believe we should continue to communicate and keep our concerns in proper context.

Sincerely,

David W. Ford, P.E.
Director of Public Works and Water/Sewer Utilities

CC. Mitchell Locker - NHDES
Paul Heirtzler, P.E. – NHDES
Rene J. Pelletier, P.E. – NHDES
Sharon Nall, P.E. – NHDES
Peter Atherton, P.E. – Wright-Pierce Engineers
David Dedian, P.E. – Woodard & Curran
David Owen - Wolfeboro Town Manager

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MEMORANDUM

TO: David W. Ford, P.E., Director of Public Works and Water & Sewer Utilities

FROM: Benjamin T. Green, P.E., Weston & Sampson

DATE: January 20, 2010

SUBJECT: Wolfeboro – Rapid Infiltration Basin Site – "Unexpected Issue"

C.C. Blake A. Martin, Weston & Sampson

The following is a description of the site visit to the Town of Wolfeboro Rapid Infiltration Basin (RIB) Site performed on January 13, 2010. The site visit was performed in response to the January 11, 2010 email by David W. Ford, P.E., Director of Public Works and Water & Sewer Utilities for the Town of Wolfeboro, requesting a site visit to observe increased seepage volumes at the location of 19 MB#8 located to the west of the site access road. Refer to the attached site map and photographs for more information.

- I arrived onsite at 1200 and started the inspection by walking up and down the paved portion of the site access road that ascends to the RIBs. The location of the increased seepage at 19 MB#8 is to the west of the access road. This means if seepage is related to RIB operation, the discharge from the RIBs is flowing underneath the roadway as groundwater, which might impact the pavement. The pavement appeared to be in good condition; no signs of cracking, settlement, or damage were noted. The swales on each side of the road were filled with snow preventing detection of any seepage or damage. The increased seepage volumes at 19 MB#8 appear to be causing no structural damage to the access road at this time.
- I walked down the hillside to the west of the access road, up gradient of 19 MB#8. I traversed down the slope and did not observe signs of slope instability or sinkholes. At the toe of the slope up gradient of 19 MB#8, wetness and standing water was observed. Active seepage in this area was not detected.
- At the location of 19 MB#8, an eroded, semi-circular scarp was observed with seepage from two areas. Seepage from the left area (facing downstream) appeared to be issuing from the erosion scarp from an approximately 3 in. diameter soil "pipe" at approximately 15 to 20 gpm. Seepage from the right area appeared to be issuing upwards from the ground surface at the toe of the scarp. I estimated the flow to be approximately 10 to 15 gpm. A pile of fine sand was observed between the two seepage exit points, See photos 1 through 4.
- Downstream of the seepage exit points, the seepage becomes overland sheet flow. Green algae growth was observed at one location. Approximately 80 ft. downstream from 19 MB#8, a 15 in. deep nick point was observed. At this location, the seepage becomes channelized flow. See photos 5 through 9.

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- Standing water was observed along the toe of the slope near the nick point to the left (east) of the channelized seepage flow. Immediately downstream of the standing water, another seepage exit point was observed. Approximately 3 to 5 gpm of flow from this area was estimated. There may be some hydraulic connection between this seepage point and the observed overland flow. This seepage exit point flows overland in the southwesterly direction, parallel to the channelized flow. The channelized flow and flow from this seepage point merge together downstream in what appears to be the "Western Wetland Area." The standing water at this location is up to 6 in. deep and green wetland vegetation was observed. See photos 10 through 13.
- Downstream of the merging of flow, the channelized water splits briefly before rejoining and flowing along former skidder ruts. Downstream of this location, the flow joins a natural/drainage channel and eventually flows through a drainage structure underneath the access road.
- Cursory field measurements of total flow were made at several points in the channelized flow. Based on the field measurements, estimates of total flow were approximately 50 gpm. It is unclear if all of this water is seepage or if some is surface drainage due to snow melt in the wet areas. Therefore, I estimate a range of seepage volumes of 25 to 50 gpm on the day of this site visit.
- I next hiked across the access road to the east and observed the area of the existing slope failure. The area appeared to be largely unchanged as similar seepage volumes and slope geometry to that previously observed was noted. "Tell tale" grade stakes were observed in the failure area.
- I hiked further to the east to the soil stockpile area from the construction of the first three RIBs. I observed that silt fence has been installed along the construction area of RIBs 4 and 5. Construction activities were underway by A.J. Coleman & Son, Inc. General Contractor (Coleman). Equipment onsite included a CAT 345B Excavator (with root grapple), a CAT D5 Dozer, and multiple 10 wheel dump trucks. The trees have been cleared from the site and Coleman was actively grubbing, stripping topsoil, and performing site grading. The grubbed material was being transported offsite.
- I observed that flow was being conveyed into RIB 2 (the center RIB) on the day of this site visit. RIBs 1 and 3 were dry and it appeared as though they have not been used in sometime as they were filled with snow.
- The conditions of the access road and existing RIBs appear unchanged from our last site visit. It does not appear as though the increased seepage at 19 MB#8 is causing any threat to these engineered structures at this time. Based on a cursory review of the "Water Level versus Discharge" plots for the site groundwater monitoring wells, it appears as though site groundwater levels have decreased in line with decreasing discharge into the RIBs.
- At 1330 hours, I left the site.

Attachments:
-Site Map with Photo Locations
-Site Photographs

Wolfeboro RIBS Site - January 13, 2010 Site Visit

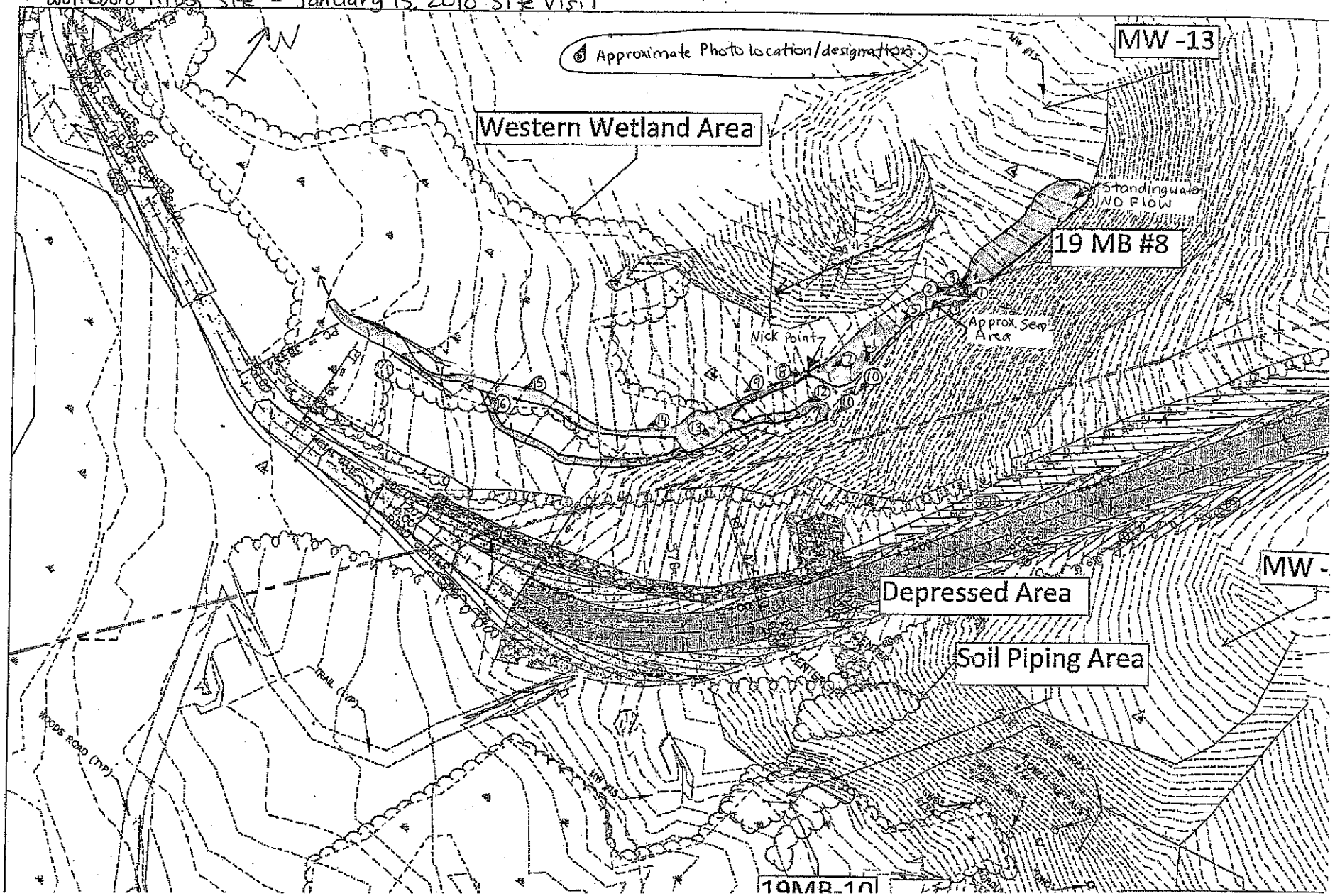

Photo 01 - The seepage breakout point at 19MB#8 looking southerly (downstream).

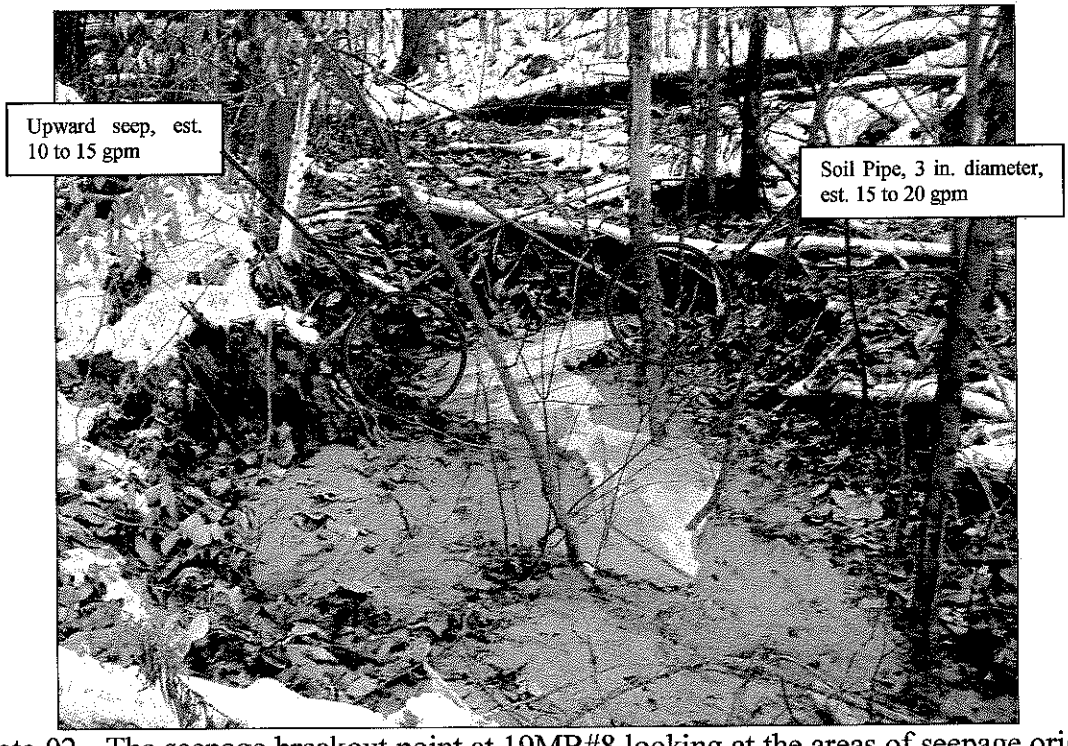

Photo 02 - The seepage breakout point at 19MB#8 looking at the areas of seepage origin. Note the pile of sand between the seeps.

Photo 03 - A close-up of the upward seep at the origin.

Photo 04 - A close-up of the soil pipe seep at the origin.

Photo 05 - The overland flow downstream of the seeps. Fine sand was observed in the wetland grasses. The other seepage origin point can be seen in the left side of this image.

Photo 06 - Green algae observed in the overland flow.

Photo 07 - The overland flow beginning to channelize and create a nick point approximately 80 ft. from the seepage origin.

Photo 08 - A close-up of the nick point looking upstream. The headcut is approximately 15 in. deep.

Photo 09 - The channelized flow downstream of the nick point.

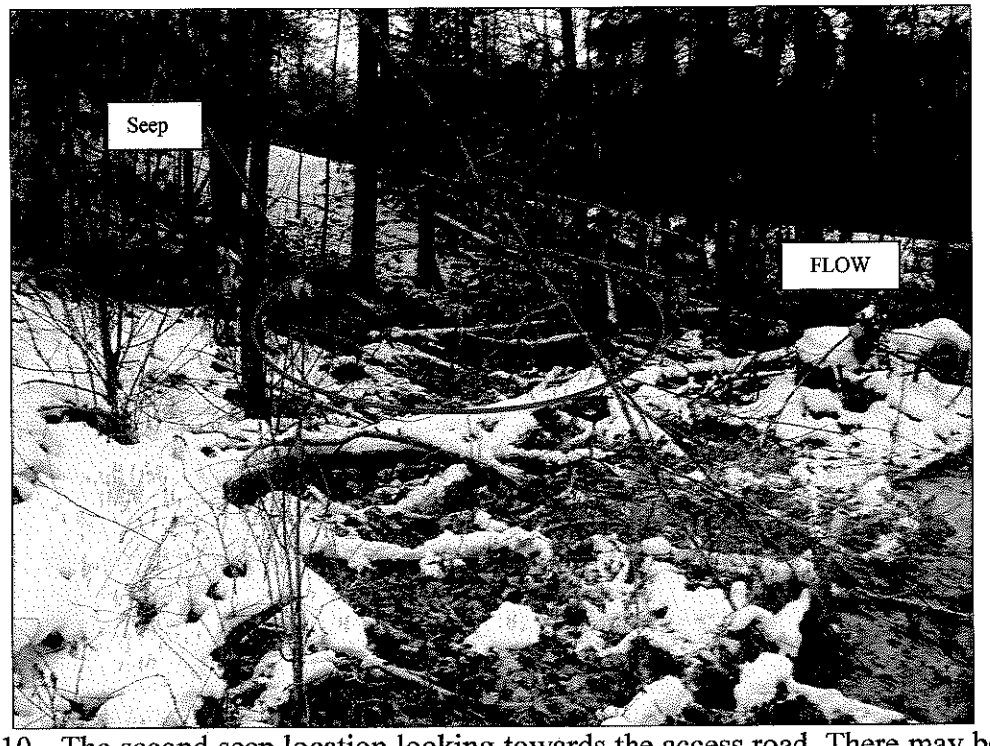

Photo 10 - The second seep location looking towards the access road. There may be flow communication between the overland flow and this area.

Photo 11 - Wetness and standing water located up gradient of the second seepage point.

Photo 12 - The second seepage exit point looking downstream.

Photo 13 - The wet area at combined flow from the two seepage areas. Green vegetative growth was observed. Standing water in this location was over 6 in. deep.

Photo 14 - Combined flow downstream of all seeps.

Photo 15 - Downstream channelizing of the seeps. The flow channels split upstream of this image and rejoin at the top of this image.

Photo 16 - The combined flow near the access road channelized in former skidder ruts. The flow enters a natural/drainage channel and is conveyed underneath the access road.

COMMITMENT & INTEGRITY
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MEMORANDUM

TO: David Ford, Town of Wolfeboro
FROM: Janet Robinson
Cc: David Dedian
DATE: February 10, 2010
RE: Review of Potential Ecological Effects of Sand Breakout

On February 3, 2010, at your request, I toured the Wolfeboro Rapid Infiltration Basin (RIB) area with you and Dave Dedian of our firm to observe the location and flowpaths of sand that recently issued from the spring at sample location 19MB #8 on the hillside southwest of the RIB area. According to your assessment the spring has shown an increased flow since the beginning of RIB operation, and at some period, approximately between late December 2009 and January 6, 2010, large quantities of fine sand emerged from the spring and accumulated around the mouth of the spring and along the downstream spring drainage areas. Your assessment was that the discharge at 19MB #8 are not believed to be continuing at present. While on-site I also reviewed the area impacted by an earlier event which resulted in sand piping into the wetlands by 19MB #10. The purpose of my visit was to observe the distribution of the sand, and from this understanding develop a preliminary opinion on potential ecological effects of the sand discharge. We did not evaluate the effects of nitrogen discharge in the spring flow, since nitrogen concentrations, which are below the levels predicted in the design, are a separate consideration for the groundwater discharge. A description of conditions at the time of my visit (as compared to a previous visit in June 2009), as well as potential effects and adverse impacts, are described below.

19MB #8 Spring

The spring at 19MB #8 is the westernmost discharge, and provides a water source associated with the western wetland. Water from this spring flows down an exposed hillside through both small channels as well as by more diffuse sheet flow, with standing water and saturated soils occurring in level areas near Nineteen Mile Brook. Believed to be formerly an intermittent discharge, this spring now flows continuously, forming a relatively new, fully aquatic habitat. Water depth in the drainage is typically two inches or less, and, prior to the discharge of sand, the substrate consisted of native soil, primarily sandy loam near the spring, with increasing amounts of fine sand near Nineteen Mile Brook. Photos 1 and 2 illustrate the spring and downstream areas as they appeared in April, 2009.

Currently, the area of the spring discharge and downgradient channels contains quantities of fine to very fine sand, with traces of silt (Photos 3, 4, and 5). Near the spring area, this sand is six inches or more thick, with decreasing quantities and depths with distance downstream. Flowing water from the spring and in the downstream channels is clear, and quantities of detritus and fine woody debris line the watercourse in slower-current areas. In lower reaches, sand is integrated into the natural sandy substrate, with fine debris and coarse particulate organic matter (CPOM) present in eddies and side channels (Photo 6). Rooted vascular aquatic plants are present in the channel, which extends to Nineteen Mile Brook. However, the presence of small lateral bars (Photo 6) and partially buried stream structures indicate the addition and continuing movement of introduced sand. Fine sand is present on the surface of large boulders in Nineteen Mile Brook at the confluence of the spring-fed stream (Photo 7). While the substrate further downstream from the confluence was not visible due to the presence of extensive surface ice, the composition of the discharged sand is similar to the native sand substrate present throughout Nineteen Mile Brook (Photo 8).

The potential ecological effects of this sand discharge consist of temporary alterations of aquatic habitat in the spring drainage channel and temporary additions of sand to the existing sand and gravel substrate of

Nineteen Mile Brook. Within the spring drainage channel, the highly organic, leaf-dominated substrate has been buried by the sand discharge, resulting in the replacement of a relatively rich habitat with a more sterile and mobile substrate. Many invertebrates, both terrestrial and aquatic, feed on fallen leaf packs, completing the first step of the nutrient cycling process by breaking leaves into smaller pieces. Near the spring outlet, these species have been lost or relocated by the presence of sand, but are likely to recolonize the area once leaf cover is re-established in autumn. Because the sand will continue to move and redistribute as it comes into physical equilibrium with the spring flow and topography, it will present an unstable substrate that will likely be colonized by relatively few species until equilibrium is attained.

Over time, however, assuming a one-time event, the sand will be integrated into the natural substrate as additional seasons of flow and leaf cover accumulate in and around the stream channel and the sand reaches a natural level of distribution. Accumulations of sand, which now exist as small lateral bars and mid-channel deposits in the lower portions of the drainage channel, will be relocated downstream or stabilized by the accumulation of debris and presence of vegetation, as has occurred in the native sand in the lower channel.

Within Nineteen Mile Brook, discharged sand will continue to be present on rock and substrate surfaces but will likely disappear when spring flooding disperses the material and mixes it with natural bedding. Because of the low silt component, adverse effects from siltation are not expected, although embeddedness may increase for a small area downstream from the confluence. Embeddedness occurs when material fills the spaces between cobble or gravel, reducing the water flow around the stone as well as the surface area available for colonization. Unless future releases of sand occur, the quantities of discharged sand that reach Nine Mile Brook are likely to redistribute and integrate with the similar native stream sand substrate over time, so that no long-term effects on the Brook are likely.

19MB #10 Spring

19MB #10 is the more easterly spring, and exists within a wetland commonly referred to the central wetland. Most of the spring flow in this area remains within the wetland, although a small drainage passes underground and eventually resurfaces before connecting to Nineteen Mile Brook. Near the spring, released sand functionally covered approximately 1,600 square feet of a forested wetland, as determined by a survey by wetland scientists (Photo 9 and 10). Some of this sand was removed by hand in 2009. Most of the remaining sand is contained within the wetlands.

Adverse effects of this sand discharge at 19MB #10 are expected to consist primarily of the physical and chemical effects of burial in the relatively small area still affected by the release. Within the wetland, the primary effect will be potential loss of wetland function by the burying of wetland soil. Wetland soil is typically aerobic at depth, so important nutrient cycling, specifically the conversion of ammonia to nitrates, occurs in the shallow aerobic upper layer. When covered with sand, this upper layer is likely to become anaerobic also, both preventing the conversion of ammonia and changing soil chemistry is a manner that may adversely affect plant growth. In addition, spring growth may be impaired by the physical effects of the sand layer. In combination, these conditions will likely result in reduced plant growth in the area around the spring. The duration of this condition is difficult to predict, but is expected to last no more that a few growing seasons.

Because of the lower gradient and more diffuse water storage in and drainage from this wetland, most sand is expected to remain in the wetland and eventually be integrated into the soil column through the addition of organic matter from annual leaf fall.

Discharges through surface water are expected to be low, because of the low volume and flow rate of drainage water. Drainage from the wetland passes underground, and resurfaces in a small, deeply-incised

and sandy bottomed channel that connects to Nineteen Mile Brook (Photos 11 and 12). Most sand, which is distributed around the spring, is not expected to enter this drainageway, but rather to be contained within the vegetated ground surface of the wetland. Sand that enters the drainage would have similar effects to those described for 19MB #8, but with less consequence, due to the small size of the drainage.

Conclusion

In summary, the primary adverse ecological effects from the discharge of sand from the springs at 19MB #8 and 19MB #10 are expected to temporary, and to consist of the following:

- degradation of aquatic habitat within the drainage from 19MB #8;
- in a small area downstream of the confluence of 19MB #8 water with Nineteen Mile Brook, a temporary potential increase in embeddedness from the discharge into of fine sand, which is expected to integrate with the existing sand and gravel substrate at or before spring floods;
- reduction in wetland plant growth in a small area at 19MB #10

These effects will diminish as the sand becomes integrated with natural soils and sediments through seasonal flooding and vegetation growth.

Photo 1. 19MB #8 spring in June, 2009

Photo 2. 19MB #8 flow channels downstream of spring in June 2009

Photo 3. 19MB #8 spring in February 2010

Photo 4. Channel downstream of 19MB #8, February 2010

Photo 5. Channel downstream of 19MB #8, February 2010

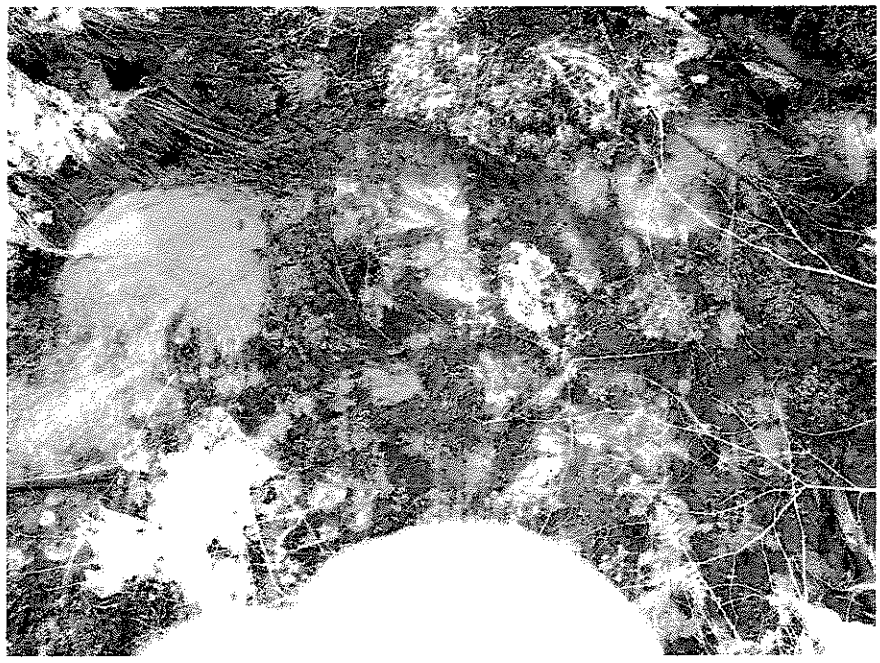

Photo 6. Lateral deposition and natural substrate of 19MB #8 drainage near stream.

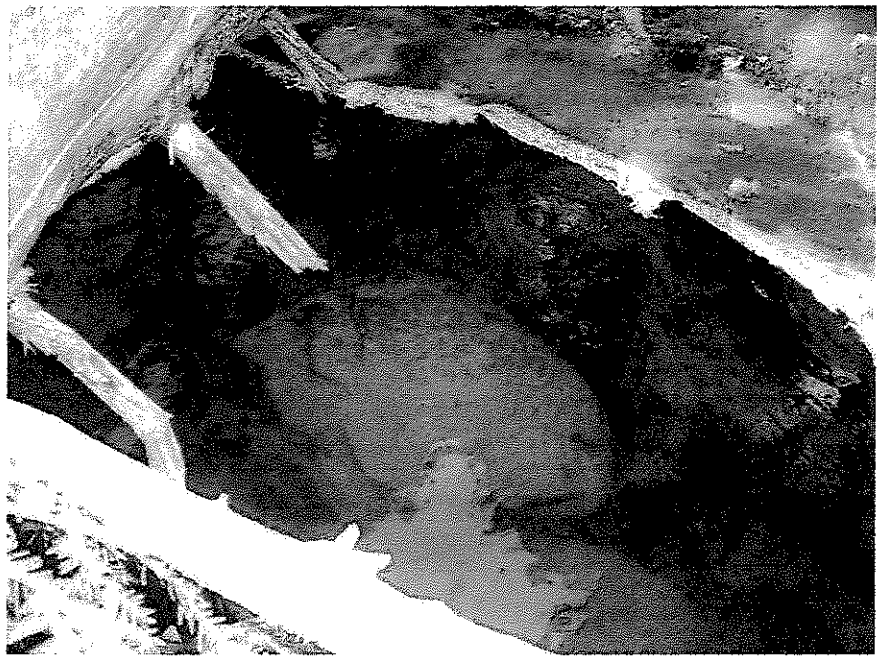

Photo 7. Sand on boulder in Nineteenmile Brook at confluence of 19MB #8 stream.

Photo 8. Sand substrate of Nineteenmile Brook upstream of 19MB #8

Photo 9. Sand discharge at 19MB #10 spring

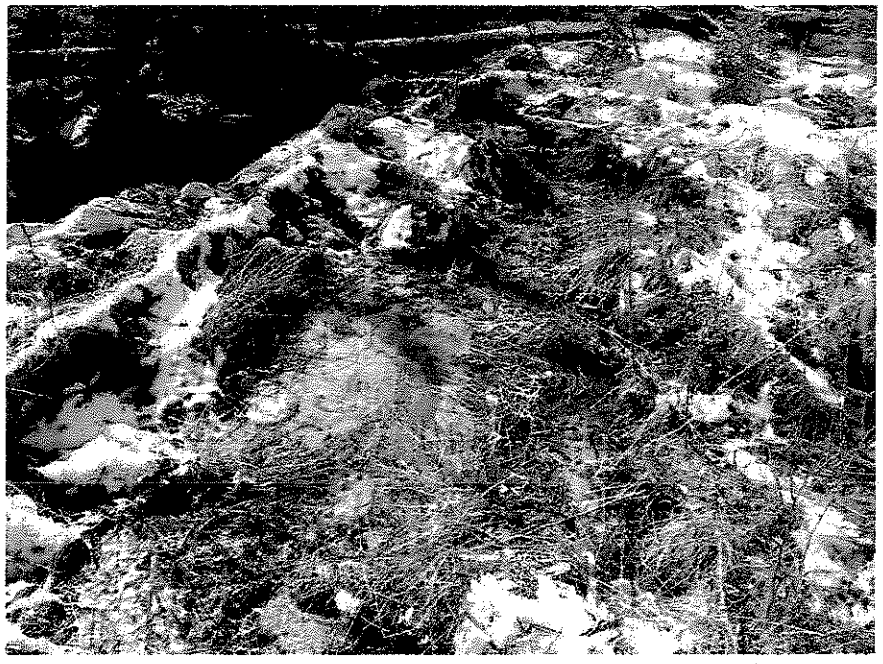

Photo 10. Sand in wetland at 19MB #10 spring

Photo 11. Drainage from central wetland

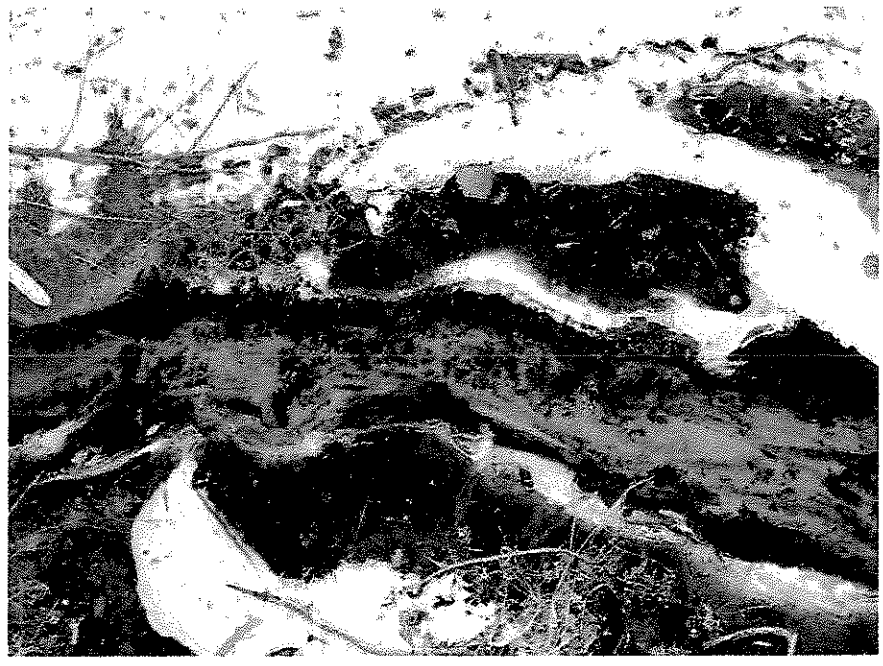

Photo 12. Substrate in drainage from central wetland

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	David Ford, Director of Public Works, Town of Wolfeboro	DATE:	February 11, 2010
FROM:	Peter Atherton	PROJECT NO.:	10922
SUBJECT:	Wolfeboro Rapid Infiltration Basins Response to Tuftonboro Conservation Commission letter dated January 27, 2010		

As requested, we have reviewed the subject letter and provide the following information to address what appear to be the key items of concern noted. The format follows the letter's concluding three sections describing a proposed course of action.

1. Permit Compliance vs. Operational Issues

- Based on the data we have seen, all applied effluent has met its groundwater discharge permit (GWDP) limitations, which include specific requirements for ammonia and nitrogen.
- All applied effluent has also infiltrated into the groundwater; and, as a result, there is no runoff from the RIBs.
- Based on both the additional pre-disposal effluent treatment requirements and the fact that all applied water infiltrates into the ground, RIB operations are not similar to the previous spray field operations.
- Other than natural phosphorus reduction in the sandy soils near the infiltrative surface, the RIBs were intended to primarily serve as a means of disposal for treated effluent. Additional natural treatment as water flows vertically and horizontally through the soil columns and wetlands would also be anticipated before eventual discharge (please also refer to Town's August 12, 2009 letter).
- Based on the data we have seen, there has been additional treatment occurring as groundwater travels through the soil column prior to groundwater surfacing within the recharge zone.
- The elevated nutrients referenced appear to be chloride and nitrate. Chloride is understood be an indicator that treated effluent flow is present (like specific conductance) and not a water quality concern at levels discharged. The nitrate levels measured (<1 mg/l) are significantly below the 7-8 mg/l that was included as part of the permitting process.
- The environmental significance of algae presence at particular seeps or the brook area is not understood in that algae was also found at natural seeps exposed to sunlight in other areas of the watershed not influenced by the RIBs last spring. It is also important to note that tree harvesting and forest cutting has occurred in the

area over the past several years and during recent construction, and those activities commonly result in natural nutrient release from soil.

2. Corrective Actions to Address Existing Operational Issues
   - The operational issues noted include the seepage, steep slope failure and sand piping reactions that have been observed in the recharge zone (these were also addressed in Town's August 12, 2009 letter).
   - A Town consultant concluded that the reactions did not pose a threat to any structures on site.
   - The reactions continue to be monitored, and appear to have stabilized over the course of 2009.
   - The reasons for the initial occurrences and the subsequent stabilization likely have several contributing factors including: seasonal groundwater levels affected by rainfall and snowmelt in watershed; overall hydraulic loading to RIBs; and use of particular RIBs (some basins appear to impact portions of recharge area more than others).
   - The Town and its consultants have been active in modifying and adjusting operations over the past year to reduce and/or improve the recharge zone's response to effluent disposal.
   - It is anticipated that observations and adjustments will continue to be made through the summer of 2010, and then throughout the next year or more as the Reserve Area RIBs are brought on-line.
   - In that: 1) most of the observed recharge area reactions were predicted (i.e., expansion of wetlands/wet areas, additional groundwater flow through natural seeps and outlets); 2) Town's consultants have suggested that a similar slope failure had likely occurred in the same area in the past; and 3) that some or all of the reactions observed may be extensions of natural reactions, it may be premature to assume that additional corrective actions or remedies would be necessary (and, if so, in what form they be).
   - In contrast to initial operations in 2009, the Town now has greater flexibility to adjust the hydraulic loading of treated effluent to the RIBs during the high groundwater periods, as adequate volume to store treated effluent is available in the Effluent Storage Pond (ESP).

3. Adding Reserve Infiltration Basins
   - The Reserve Area RIBs are currently in construction and should be operational by the summer of 2010.
   - The original work for the project included use of the entire RIB site; however, based in part on the measured surface infiltrative capacity and presence of deep soils, a decision was made during the design period to reduce the size of RIB surface area (and thus increase the hydraulic loading of the resultant site area).

At that time, it was agreed that this approach was justifiable; however, DES permitted the RIB site contingent upon other the area (i.e., the Reserve Area) being constructed if needed in the future.

- As a result of the recharge area's reactions to initial operations, DES encouraged the Town to consider constructing the Reserve Area RIBs in order to take advantage of the deep infiltrative soils on site, balance the hydraulic loads, and provide more rest time for RIBs between cycles.
- The Reserve Area expansion is being funded under the ARRA program and is considered categorically 'green' infrastructure in terms of water and energy efficiency and having environmentally innovative components.
- The Reserve Area expansion will increase the total RIB surface area by 50 percent.
- No additional permitted flow is being requested as a result of the expansion.
- A second firm performed a supplementary hydrogeologic investigation of the Reserve Area, and a plan has been developed to bring the new RIBs on-line.
- It should also be noted that a peer review of the original work was also previously performed.
- At a meeting in August 2009, DES stated that their preferences on next steps if the Reserve Area RIBs couldn't be built (or would not be sufficient) would be to explore additional RIB areas near existing site, consider eliminating the ESP, increase I/I reduction efforts, and/or reconsider effluent snow making.
- DES has stated that the RIBs are a better environmental solution than the previous spray fields (i.e., best governing option), and that the Town has essentially no other options (other than the unlikely expansion of the WRBP system). The goal of the project is to best address the wastewater disposal needs with minimal environmental impact.
- The monitoring of the RIBs will be the most reliable indicator of performance over time. The Town will need to reapply to DES for a GWDP on a five year cycle.