

JBT01 tile drain monitoring station

PROJECT NO.

15-309

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Assessment of Tile Drainage Systems in the Jewett Brook Watershed:

April 2017 Monitoring Summary

April 2017 Monitoring Summary

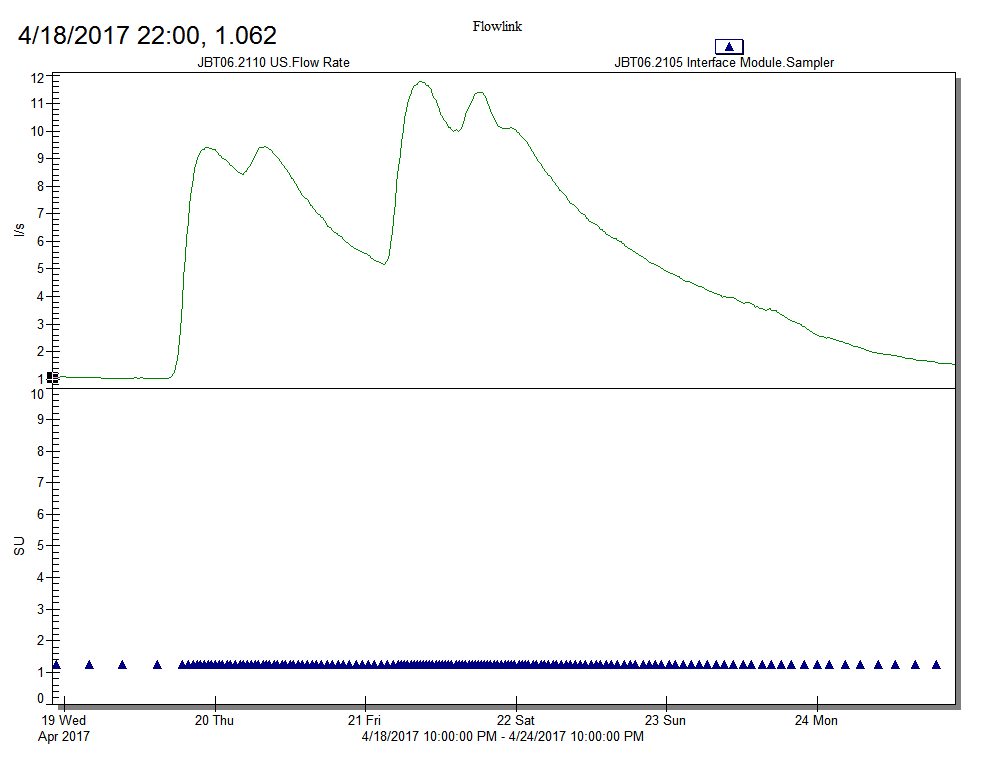
The purpose of this report is to document monitoring activities performed last month, in April 2017, at 12 selected tile drain outlets in the Jewett Brook watershed in St. Albans, Vermont.

At the time of writing (May 15, 2017), all 12 stations are operational. In late March 2017, flow data collection began at several sites. Sample collection commenced in April 2017. Table 1 identifies the start dates for monitoring activities at each station. On April 5, 2017, autosampling programs were initiated at 8 of the 12 stations (JBT01, JBT02, JBT04, JBT06, JBT07, JBT11, JBT14, and JBT16). The following week, on April 11, 2017 the first set of weekly composite samples was collected and processed in accordance with the project Quality Assurance Project Plan, Version 1.0, Amendment 1. Immediately after sample collection on April 11, autosamplers were restarted at the first eight stations and sampling was initiated at station JBT13. Flow monitoring and sample collection began at JBT05 on April 20 and at JBT18 and JBT19 on April 22, 2017.

Upon start up, it became apparent that the JBT05 flowmeter was malfunctioning. A substitute ISCO 2150 area-velocity flowmeter has been installed to minimize data losses, until the Waterflux 3000 flowmeter can be replaced.

Every 30 minutes, flow and sampling data are transmitted to Stone’s server. These data are checked periodically to assess whether the sampling program is working as intended. Figure 1 displays an example of recently collected flow data (top panel) at station JBT05, along with the time each sample aliquot was dispensed to the sample carboys (bottom panel).

Figure 1. Example flow rate and sampling marks from Station JBT05



To date, five rounds of sampling have been performed at the tile drain monitoring sites. Flow-pacing settings are adjusted during each sampling round, based on recently measured flow rates and considering the weather forecast, with the goal of producing between 5-L and 10-L of composite sample at each site. Our subcontractor, the Friends of Northern Lake Champlain, is performing the sample processing.

Table 1: Start dates for monitoring activities at each station

| Station | Start flow monitoring | Start autosampling |
| --- | --- | --- |
| JBT01 | 3/23/17 | 4/5/17 |
| JBT02 | 3/23/17 | 4/5/17 |
| JBT04 | 4/3/17 | 4/5/17 |
| JBT05 | 4/20/17 | 4/20/17 |
| JBT06 | 4/5/17 | 4/5/17 |
| JBT07 | 3/30/17 | 4/5/17 |
| JBT11 | 4/5/17 | 4/5/17 |
| JBT13 | 4/3/17 | 4/11/17 |
| JBT14 | 4/5/17 | 4/5/17 |
| JBT16 | 3/30/17 | 4/5/17 |
| JBT18 | 4/22/17 | 4/22/17 |
| JBT19 | 4/22/17 | 4/22/17 |

Analytical data are currently available only for the first round of samples (Table 2).

Table 2: TP, TDP, and TN concentrations in weekly composite

samples collected April 11, 2017

| Station | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| --- | --- | --- | --- |
| JBT01 | 491 | 258 | 4.8 |
| JBT02 | 976 | 678 | 7.2 |
| JBT04 | 798 | 120 | 4.9 |
| JBT05 | NS | NS | NS |
| JBT06 | 195 | 131 | 33 |
| JBT07 | 708 | 159 | 7.5 |
| JBT11 | 40 | 58 | 3.3 |
| JBT13 | NS | NS | NS |
| JBT14 | 248 | 66 | 7.4 |
| JBT16 | 105 | 73 | 5.8 |
| JBT18 | NS | NS | NS |
| JBT19 | NS | NS | NS |