

JBT01 tile drain monitoring station

PROJECT NO.

15-309

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Assessment of Tile Drainage Systems in the Jewett Brook Watershed:

July 2017 Monitoring Summary

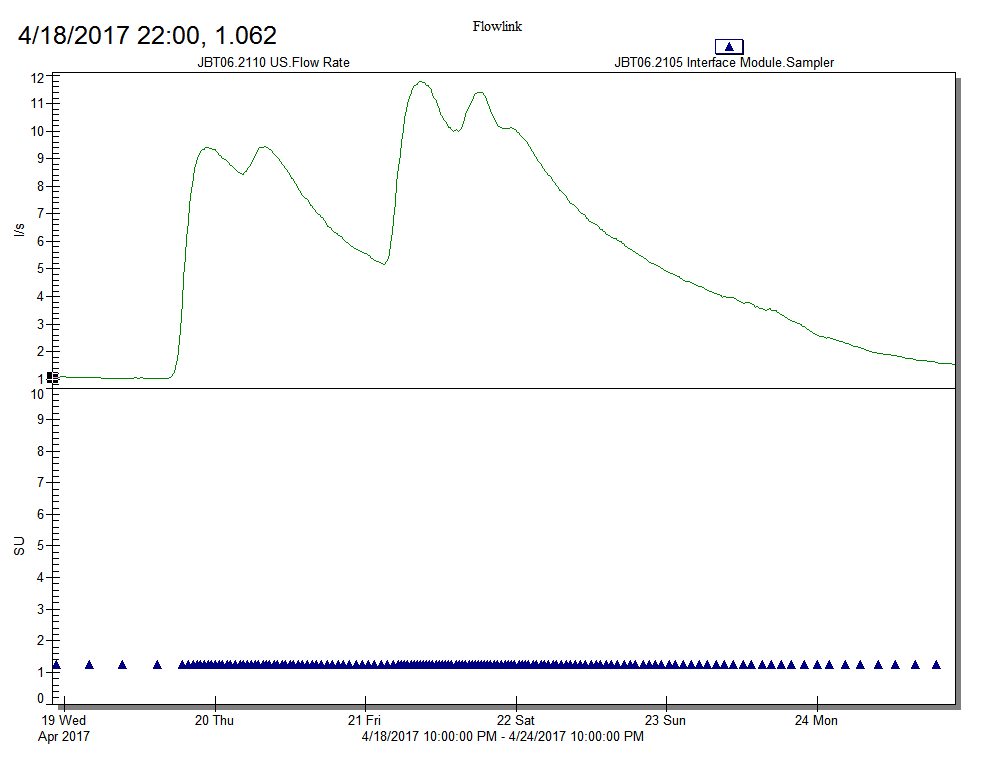
July 2017 Monitoring Summary

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

All 12 stations are operational. Table 1 identifies the start dates for monitoring activities at each station. The first set of weekly composite samples was collected and processed on April 11, in accordance with the project Quality Assurance Project Plan, Version 1.0, Amendment 1.

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 flow data (top panel) at station JBT06, along with the time each sample aliquot was dispensed to the sample carboys (bottom panel). Figure 2 displays flow data from the start of the monitoring period at JBT01. These data are considered representative of the pattern of flow observed across all the stations.

Figure 1. Example flow rate and sampling marks from Station JBT06



Flow monitoring and sample collection continues at all twelve stations. Flow-paced, composite samples are collected approximately weekly. To date, 19 sampling rounds have been performed at the tile drain monitoring sites. Flow-pacing settings are adjusted at the start of each sampling round, based on recently measured flow rates and the weather forecast. The goal is to produce between 5–10 L of composite sample at each site. Stone’s subcontractor, the Friends of Northern Lake Champlain, is performing the majority of the sample processing. Various maintenance activities are performed on every sample collection date, including checking/changing instrument desiccant and removing vegetation shading solar panels.

Sampling activities remained generally successful through July. On August 3, 2017, problems were resolved at three stations, which affected one or more composite samples collected in July.

* **JBT05:** After a several month’s wait, a replacement Waterflux 3000 flowmeter and repaired IFC 100W signal converter were received, prepared, and installed at station JBT05. The original flowmeter failed upon installation and a less accurate, substitute flow meter was deployed in the interim. We anticipate having to make extensive edits to the flow data collected prior to installation of the replacement Waterflux flowmeter.
* **JBT04:** Solar exposure to this solar panel declined as the tree canopy at the site filled in through the spring and summer months. This resulted in two or three power failures in July. An auxiliary solar panel was installed, which was not adequate. On August 3, 2017, wiring was rerouted and the main solar panel was moved to the opposite side of the station, which greatly improved solar gain.
* **JBT13:** No sample was present on the August 1 sampling date because the water level in the monitoring manhole had fallen below the level of the autosampler intake strainer. This problem was corrected on August 3, 2017 and sampling resumed.

Composite samples collected at the tile drain monitoring stations are analyzed by the Vermont Agriculture and Environmental Laboratory for concentrations of total phosphorus (TP), total dissolved phosphorus (TDP), and total nitrogen (TN). Table 2 presents these data for all analyses classified as Approved. Results are not yet available for samples collected since July 18, 2017.

We in the process of developing a database to allow efficient extraction and summary of interval flow data and constituent concentrations and calculated loads.

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 |

Table 2: TP, TDP, and TN concentrations in composite samples collected through July 18, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT01 | 4/11/2017 | 1 | 491 | 258 | 4.81 |
| JBT01 | 4/18/2017 | 1 | 55.1 | 21.1 | 4.77 |
| JBT01 | 4/25/2017 | 1 | 77.3 | 17.6 | 5.24 |
| JBT01 | 5/2/2017 | 1 | 333 | 81.2 | 5.63 |
| JBT01 | 5/9/2017 | 1 | 208 | 44.5 | 5.29 |
| JBT01 | 5/9/2017 | 2+3 | 236 | 40.8 | 5.17 |
| JBT01 | 5/16/2017 | 1 | 26.7 | 15.4 | 4.96 |
| JBT01 | 5/23/2017 | 1 | 127 | 26.7 | 5.27 |
| JBT01 | 5/30/2017 | 1 | 19.3 | 13 | 5.13 |
| JBT01 | 6/7/2017 | 1 | 23.5 | 7.6 | 5.32 |
| JBT01 | 6/13/2017 | 1 | 23.9 | 13.9 | 5.29 |
| JBT01 | 6/22/2017 | 1 | 28.6 | 16.1 | 6.48 |
| JBT01 | 6/27/2017 | 1 | 108 | 64.4 | 22.19 |
| JBT01 | 6/27/2017 | 2 | 111 | 72.2 | 15.57 |
| JBT01 | 6/27/2017 | 3 | 63.8 | 44.1 | 8.47 |
| JBT01 | 7/5/2017 | 1 | 256 | 77.9 | 8.05 |
| JBT01 | 7/5/2017 | 2+3 | 94.6 | 46.7 | 6.27 |
| JBT01 | 7/11/2017 | 1+2 | 223 | 106 | 6.63 |
| JBT01 | 7/18/2017 | 1 | 98 | 47.5 | 5.31 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT02 | 4/11/2017 | 1 | 976 | 678 | 7.19 |
| JBT02 | 4/18/2017 | 1 | 242 | 93.6 | 8.52 |
| JBT02 | 4/25/2017 | 1 | 491 | 142 | 8.68 |
| JBT02 | 5/2/2017 | 1 | 805 | 492 | 8.58 |
| JBT02 | 5/9/2017 | 1 | 585 | 120 | 8.52 |
| JBT02 | 5/9/2017 | 2 | 868 | 122 | 7.88 |
| JBT02 | 5/9/2017 | 3 | 868 | 156 | 8 |
| JBT02 | 5/16/2017 | 1 | 109 | 37.6 | 8.26 |
| JBT02 | 5/30/2017 | 1 | 78.5 | 30.3 | 8.83 |
| JBT02 | 6/7/2017 | 1 | 67.3 | 28.2 | 11.78 |
| JBT02 | 6/13/2017 | 1 | 48 | 28.5 | 11.69 |
| JBT02 | 6/22/2017 | 1 | 90.9 | 42.3 | 12.86 |
| JBT02 | 6/26/2017 | 1 | 137 | 61.9 | 25.34 |
| JBT02 | 6/26/2017 | 2 | 189 | 82.2 | 29.34 |
| JBT02 | 6/26/2017 | 3 | 160 | 94 | 27.34 |
| JBT02 | 6/26/2017 | 4 | 315 | 106 | 22.93 |
| JBT02 | 7/5/2017 | 1+2 | 102 | 60.5 | 9.85 |
| JBT02 | 7/11/2017 | 1 | 303 | 118 | 8.68 |
| JBT02 | 7/11/2017 | 2 | 433.5 | 196 | 7.19 |
| JBT02 | 7/18/2017 | 1 | 186.5 | 118 | 7.27 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT04 | 4/11/2017 | 1 | 798 | 120 | 4.89 |
| JBT04 | 4/18/2017 | 1 | 115 | 38.6 | 4.33 |
| JBT04 | 4/25/2017 | 1 | 133 | 45.4 | 4.86 |
| JBT04 | 5/2/2017 | 1 | 500 | 79.2 | 5.43 |
| JBT04 | 5/9/2017 | 1 | 303 | 52.9 | 4.19 |
| JBT04 | 5/9/2017 | 2+3 | 404 | 58.8 | 4.23 |
| JBT04 | 5/16/2017 | 1 | 68.8 | 22.2 | 3.8 |
| JBT04 | 5/23/2017 | 1 | 109 | 23.6 | 4.35 |
| JBT04 | 5/30/2017 | 1 | 90.2 | 18.1 | 4.37 |
| JBT04 | 6/7/2017 | 1 | 114 | 10.7 | 5.65 |
| JBT04 | 6/13/2017 | 1 | 42.9 | 19.6 | 5.19 |
| JBT04 | 6/22/2017 | 1 | 108 | 49.5 | 5.39 |
| JBT04 | 6/27/2017 | 1 | 184 | 52.4 | 29.19 |
| JBT04 | 6/27/2017 | 2 | 135 | 49.6 | 27.59 |
| JBT04 | 6/27/2017 | 3 | 115 | 65.3 | 16.71 |
| JBT04 | 6/27/2017 | 4 | 73.6 | 50.1 | 11.85 |
| JBT04 | 7/5/2017 | 1 | 270.5 | 53 | 13.07 |
| JBT04 | 7/5/2017 | 2+3 | 132 | 52.6 | 7.29 |
| JBT04 | 7/11/2017 | 1+2 | 261.5 | 51.5 | 8.25 |
| JBT04 | 7/18/2017 | 1 | 125.5 | 38.4 | 5.79 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT05 | 4/25/2017 | 1 | 68.7 | 53.7 | 24.78 |
| JBT05 | 5/2/2017 | 1 | 226 | 108 | 20.6 |
| JBT05 | 5/9/2017 | 1 | 132 | 82.9 | 23.56 |
| JBT05 | 5/16/2017 | 1 | 33.6 | 26.6 | 21.68 |
| JBT05 | 5/23/2017 | 1 | 60 | 38.4 | 14.84 |
| JBT05 | 5/30/2017 | 1 | 38.4 | 37 | 10.52 |
| JBT05 | 6/6/2017 | 1+2 | 34.1 | 21.4 | 8.1 |
| JBT05 | 6/13/2017 | 1+2+3 | 67.6 | 49.6 | 12.68 |
| JBT05 | 6/22/2017 | 1 | 61.2 | 40.6 | 14.48 |
| JBT05 | 6/27/2017 | 1+2 | 345 | 285.3 | 34.73 |
| JBT05 | 6/27/2017 | 3+4 | 408 | 357 | 27.73 |
| JBT05 | 6/30/2017 | 1 | 79.7 | 57.2 | 24.83 |
| JBT05 | 6/30/2017 | 2 | 595 | 452 | 21.23 |
| JBT05 | 6/30/2017 | 3 | 210 | 181 | 23.63 |
| JBT05 | 7/5/2017 | 1 | 134 | 100 | 24.58 |
| JBT05 | 7/11/2017 | 1+2 | 565 | 493 | 23.7 |
| JBT05 | 7/18/2017 | 1 | 138 | 104 | 29.55 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT06 | 4/11/2017 | 1 | 195 | 131 | 33.47 |
| JBT06 | 4/18/2017 | 1 | 192 | 76.3 | 20.71 |
| JBT06 | 4/25/2017 | 1 | 117 | 70.1 | 24.03 |
| JBT06 | 5/2/2017 | 1 | 321 | 164 | 25.2 |
| JBT06 | 5/9/2017 | 1 | 150 | 100 | 28.2 |
| JBT06 | 5/9/2017 | 2 | 135 | 98.1 | 13.54 |
| JBT06 | 5/16/2017 | 1 | 180 | 96.2 | 26.04 |
| JBT06 | 5/23/2017 | 1 | 327 | 65.2 | 21.04 |
| JBT06 | 5/30/2017 | 1 | 67.7 | 37.8 | 22.52 |
| JBT06 | 6/7/2017 | 1 | 138 | 88.9 | 25.87 |
| JBT06 | 6/13/2017 | 1 | 47.4 | 36.4 | 25.95 |
| JBT06 | 6/22/2017 | 1 | 45.9 | 27.3 | 23.12 |
| JBT06 | 6/27/2017 | 1 | 412 | 192 | 42.67 |
| JBT06 | 6/27/2017 | 2 | 210 | 157 | 48.27 |
| JBT06 | 6/27/2017 | 3 | 416 | 222 | 46.63 |
| JBT06 | 6/27/2017 | 4 | 234 | 183 | 49.83 |
| JBT06 | 6/30/2017 | All4 | 266.4 | 174 | 33.83 |
| JBT06 | 7/5/2017 | 1 | 134 | 109 | 34.82 |
| JBT06 | 7/11/2017 | 1+2 | 228 | 137 | 26.5 |
| JBT06 | 7/18/2017 | 1 | 128.4 | 106 | 32.55 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT07 | 4/11/2017 | 1 | 708 | 159 | 7.52 |
| JBT07 | 4/18/2017 | 1 | 45 | 14.1 | 4.81 |
| JBT07 | 4/25/2017 | 1 | 103 | 27.4 | 5.79 |
| JBT07 | 5/2/2017 | 1 | 279.6 | 58 | 6.72 |
| JBT07 | 5/9/2017 | 1 | 126 | 41.4 | 6.17 |
| JBT07 | 5/9/2017 | 2+3 | 230 | 54.2 | 6.59 |
| JBT07 | 5/16/2017 | 1 | 19.7 | 12.9 | 5.21 |
| JBT07 | 5/23/2017 | 1 | 24.4 | 11.9 | 5.08 |
| JBT07 | 5/30/2017 | 1 | 21.1 | 14.2 | 5.29 |
| JBT07 | 6/7/2017 | 1 | 17 | 6.98 | 5.57 |
| JBT07 | 6/13/2017 | 1 | N.S.1 | 13.1 | 5.35 |
| JBT07 | 6/22/2017 | 1 | 39.3 | 17.1 | 8.16 |
| JBT07 | 6/26/2017 | 1 | 242 | 177 | 45.18 |
| JBT07 | 6/26/2017 | 2 | 555 | 357 | 45.18 |
| JBT07 | 6/26/2017 | 3 | 204 | 182 | 31.59 |
| JBT07 | 6/26/2017 | 4 | 389.2 | 230 | 23.59 |
| JBT07 | 6/30/2017 | 1 | 79.7 | 60.8 | 12.67 |
| JBT07 | 6/30/2017 | 2+3 | 700 | 327 | 18.55 |
| JBT07 | 7/5/2017 | 1 | 119 | 88.6 | 11.62 |
| JBT07 | 7/11/2017 | 1 | 47.3 | 21 | 11.05 |
| JBT07 | 7/18/2017 | 1 | 69.9 | 54.9 | 15.37 |
| 1. Broken at lab | | | | | |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT11 | 4/11/2017 | 1 | 39.5 | 57.8 | 3.35 |
| JBT11 | 4/18/2017 | 1 | 11.5 | 16.2 | 2.59 |
| JBT11 | 4/25/2017 | 1 | 14.7 | 9.73 | 2.45 |
| JBT11 | 5/2/2017 | 1 | 46.5 | 16.1 | 2.04 |
| JBT11 | 5/9/2017 | 1 | 28.8 | 12 | 1.63 |
| JBT11 | 5/9/2017 | 2 | 39 | 12.9 | 1.53 |
| JBT11 | 5/16/2017 | 1 | 31.2 | 23.1 | 1.24 |
| JBT11 | 5/23/2017 | 1 | 234 | 28.8 | 1.24 |
| JBT11 | 5/30/2017 | 1 | 18.1 | 9.58 | 0.81 |
| JBT11 | 6/7/2017 | 1 | 18.6 | 6.46 | 0.91 |
| JBT11 | 6/13/2017 | 1 | 49.7 | 17.2 | 1.29 |
| JBT11 | 6/22/2017 | 1 | 68.8 | 26.4 | 0.77 |
| JBT11 | 6/27/2017 | 1 | 61.5 | 29.2 | 1.48 |
| JBT11 | 6/27/2017 | 2 | 89.8 | 48 | 1.59 |
| JBT11 | 6/27/2017 | 3 | 77.1 | 51.4 | 1.54 |
| JBT11 | 6/27/2017 | 4 | 81.4 | 44 | 1.51 |
| JBT11 | 6/30/2017 | 1 | 30.3 | 17.9 | 1.11 |
| JBT11 | 6/30/2017 | 2 | 24.8 | 17.9 | 1.01 |
| JBT11 | 6/30/2017 | 3 | 24 | 16.8 | 1.05 |
| JBT11 | 6/30/2017 | 4 | 23.3 | 16 | 1.06 |
| JBT11 | 7/5/2017 | 1 | 21.2 | 16.8 | 1.16 |
| JBT11 | 7/11/2017 | 1 | 28.1 | 19.5 | 1.3 |
| JBT11 | 7/18/2017 | 1 | 33.5 | 64.4 | 1.22 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT13 | 4/18/2017 | 1 | 63.8 | 23.2 | 6.12 |
| JBT13 | 4/25/2017 | 1 | 113 | 26.1 | 6.44 |
| JBT13 | 5/2/2017 | 1 | 560 | 41.1 | 5.25 |
| JBT13 | 5/9/2017 | 1+2 | 120 | 35.7 | 6.1 |
| JBT13 | 5/16/2017 | 1 | 35295 | N.S. | 217.21 |
| JBT13 | 5/23/2017 | 1 | 3720 | 2525 | 17.2 |
| JBT13 | 5/30/2017 | 1 | 2975 | 2070 | 14.08 |
| JBT13 | 6/7/2017 | 1 | 3585 | 2240 | 19.08 |
| JBT13 | 6/13/2017 | 1 | 815 | 489.5 | 7.97 |
| JBT13 | 6/22/2017 | 1 | 912 | 585 | 8.94 |
| JBT13 | 6/27/2017 | 1 | 525 | 218 | 21.83 |
| JBT13 | 6/27/2017 | 2 | 384.8 | 137 | 12.71 |
| JBT13 | 7/5/2017 | 1 | 312 | 143 | 28.87 |
| JBT13 | 7/5/2017 | 2 | 87.1 | 70.5 | 14.03 |
| JBT13 | 7/11/2017 | 1 | 350.4 | 191 | 12.15 |
| JBT13 | 7/18/2017 | 1 | 95.3 | 94.8 | 16.97 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT14 | 4/11/2017 | 1 | 248 | 66.5 | 7.43 |
| JBT14 | 4/18/2017 | 1 | 70.5 | 33.2 | 8.25 |
| JBT14 | 4/25/2017 | 1 | 145 | 51.5 | 7.62 |
| JBT14 | 4/25/2017 | 2 | 46.3 | 35.2 | 8.22 |
| JBT14 | 5/2/2017 | 1 | 342 | 59.3 | 7.2 |
| JBT14 | 5/9/2017 | 1+2 | 177 | 51.1 | 7.12 |
| JBT14 | 5/16/2017 | 1 | 4335 | 1640 | 51.21 |
| JBT14 | 5/23/2017 | 1 | 690 | 183 | 9.66 |
| JBT14 | 5/30/2017 | 1 | 78.2 | 75.7 | 7.72 |
| JBT14 | 6/7/2017 | 1 | 138 | 143 | 19.95 |
| JBT14 | 6/13/2017 | 1+2 | 73.6 | 60.1 | 9.89 |
| JBT14 | 6/22/2017 | 1 | 189 | 132 | 11.88 |
| JBT14 | 6/27/2017 | 1 | 482 | 208 | 31.95 |
| JBT14 | 6/27/2017 | 2 | 618 | 345 | 22.75 |
| JBT14 | 6/27/2017 | 3 | 246 | 216 | 19.91 |
| JBT14 | 6/30/2017 | 1 | 436 | 210 | 56.87 |
| JBT14 | 6/30/2017 | 2 | 220 | 162 | 34.23 |
| JBT14 | 7/5/2017 | 1 | 95.9 | 86.4 | 16.81 |
| JBT14 | 7/5/2017 | 2 | 90.4 | 74.1 | 14.07 |
| JBT14 | 7/11/2017 | 1 | 103 | 87.4 | 13.35 |
| JBT14 | 7/18/2017 | 1 | 88.3 | 102 | 14.87 |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT16 | 4/11/2017 | 1 | 105 | 72.7 | 5.77 |
| JBT16 | 4/18/2017 | 1 | 28.2 | 22.4 | 5.12 |
| JBT16 | 4/25/2017 | 1 | 28.5 | 21.5 | 4.48 |
| JBT16 | 5/2/2017 | 1 | 256.2 | 25.5 | 3.89 |
| JBT16 | 5/9/2017 | 1+2 | 31.3 | 13.7 | 2.79 |
| JBT16 | 5/16/2017 | 1 | 19.4 | 13.3 | 2.89 |
| JBT16 | 5/23/2017 | 1 | 26.2 | 17 | 2.96 |
| JBT16 | 5/30/2017 | 1 | 26.7 | 17.7 | 2.62 |
| JBT16 | 6/7/2017 | 1 | 25.9 | 9.56 | 3.68 |
| JBT16 | 6/13/2017 | 1 | 29.4 | 17.4 | 3.44 |
| JBT16 | 6/22/2017 | 1 | 85.9 | 32.9 | 5.81 |
| JBT16 | 6/26/2017 | 1+2 | 89.2 | 44.1 | 21.99 |
| JBT16 | 7/5/2017 | 1 | 41 | 28.9 | 14.85 |
| JBT16 | 7/5/2017 | 2+3 | 34.3 | 27.6 | 12.43 |
| JBT16 | 7/11/2017 | 1 | 32.8 | 29.8 | 9.75 |
| JBT16 | 7/18/2017 | 1 | 35.4 | 22.3 | 8.4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT18 | 4/25/2017 | 1 | 87.4 | 46.1 | 1.16 |
| JBT18 | 5/2/2017 | 1 | 170 | 42.3 | 1.26 |
| JBT18 | 5/9/2017 | 1 | 140 | 40.1 | 1.13 |
| JBT18 | 5/9/2017 | 2 | 77.5 | 37.5 | 0.99 |
| JBT18 | 5/9/2017 | 3 | 159 | 32.5 | 1.06 |
| JBT18 | 5/9/2017 | 4 | 199 | 38.6 | 1.1 |
| JBT18 | 5/16/2017 | 1 | 80.8 | 35.9 | 0.71 |
| JBT18 | 5/23/2017 | 1 | 49.7 | 16 | 0.78 |
| JBT18 | 5/30/2017 | 1 | 89.1 | 23 | 0.95 |
| JBT18 | 6/6/2017 | 1 | 46.5 | 8.59 | 0.79 |
| JBT18 | 6/13/2017 | 1 | 160 | 31.1 | 1.25 |
| JBT18 | 6/22/2017 | 1 | 71.2 | N.S.1 | 1.33 |
| JBT18 | 6/30/2017 | 1 | 260.5 | 57.2 | 2.04 |
| JBT18 | 6/30/2017 | 2 | 234 | 71.5 | 1.9 |
| JBT18 | 6/30/2017 | 3 | 206 | 58.9 | 1.61 |
| JBT18 | 6/30/2017 | 4 | 142 | 57.9 | 1.38 |
| JBT18 | 7/5/2017 | 1+2+3+4 | 143 | 74.4 | 0.98 |
| JBT18 | 7/11/2017 | 1 | 135 | 59.5 | 1.06 |
| JBT18 | 7/18/2017 | 1 | 166 | 183 | 1.15 |
| 1. Broken at lab | | | | | |

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| --- | --- | --- | --- | --- | --- |
| Station | Sampling date | Carboy | TP (µg/L) | TDP (µg/L) | TN (mg/L) |
| JBT19 | 4/25/2017 | 1 | 27.2 | 31.7 | 1 |
| JBT19 | 5/2/2017 | 1 | 56 | 21.1 | 1.1 |
| JBT19 | 5/9/2017 | 1 | 40.1 | 29.1 | 0.76 |
| JBT19 | 5/9/2017 | 2 | 20.9 | 12.2 | 0.61 |
| JBT19 | 5/9/2017 | 3+4 | 55.2 | 20.4 | 0.82 |
| JBT19 | 5/16/2017 | 1 | 17.6 | 12.6 | 0.45 |
| JBT19 | 5/23/2017 | 1 | 54.6 | 22.1 | 1 |
| JBT19 | 5/30/2017 | 1 | 21.8 | 10.4 | 0.49 |
| JBT19 | 6/13/2017 | 1 | 81.1 | 23.1 | 0.91 |
| JBT19 | 6/22/2017 | 1 | 151 | N.S.1 | 1.24 |
| JBT19 | 6/30/2017 | 1 | 163 | 73.7 | 2.04 |
| JBT19 | 6/30/2017 | 2 | 52.2 | 39.4 | 0.88 |
| JBT19 | 6/30/2017 | 3+4 | 51.8 | 40.9 | 0.94 |
| JBT19 | 7/5/2017 | 1+2+3+4 | 41.4 | 31.3 | 0.71 |
| JBT19 | 7/11/2017 | 1 | 45.3 | 21.8 | 0.57 |
| JBT19 | 7/18/2017 | 1 | 79.3 | 74.2 | 1.05 |
| 1. Broken at lab | | | | | |

Figure 2. Flow rate at the JBT01 tile drain monitoring station