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February 10, 2025

Mr. Mark Connors  
Town of Hamilton Conservation Commission  
650 Asbury Street, P.O. Box 429  
Hamilton, MA 01982

Re: Response to Inquiry  
Conservation Commission Letter to Gale (February 3, 2025)  
HWRHS Athletic Facilities Improvements Project  
DEP File Number: 172-0642

Dear Mr. Connors,

On February 3, 2025, the Hamilton Conservation Commission (HCC) issued a letter to Gale Associates, Inc. (Gale) requesting additional information regarding the artificial turf component testing results provided to date for the proposed materials to be utilized on the Athletic Facilities Improvements Project at Hamilton-Wenham Regional High School (HWRHS) developed on behalf of the Owner, the Hamilton-Wenham Regional School District (HWRSD). These testing results have been procured by Gale and distributed to HCC in accordance with Special Condition 19 of the associated Wetlands Protection Act (WPA) and Massachusetts Department of Environmental Protection (DEP) Permit, File Number 172-0642. The text of Special Condition 19 reads as follows:

*“Prior to the Commencement of work on-site, the applicant will engage an independent testing laboratory to test the turf, infill, and shock pad for PFAS, PFOA (Perfluorooctanoic acid), PFOS (Perfluorooctane Sulfonic Acid), and “Gen X” chemicals PFBS (perfluorobutane sulfonic acid and its potassium salt) and HFPA – hexafluoropropylene oxide dimer acid and its ammonium salt), using best available methodology. The results of these tests will be submitted to the Commission before work is begun.*

- A. *The Commission reserves the right to require additional Conditions should the result of this test reveal unacceptable high levels of these compounds.*
- B. *The Commission expects that the chemicals regulated by the Commonwealth’s Department of Environmental Protection, and the U.S. Environmental Protection Agency will continue to change. The most up-to-date list of regulated PFAS and “Gen X” chemicals from both agencies shall form the basis for this water testing condition and the version of both agencies’ list used shall be referenced in all reporting documents.*
- C. *The Commission expects a summary of all PFAS reported as a chemical class, rather than as individual chemicals, to be a component of the required testing and reporting regimen.*
- D. *Should neighboring landowners refuse permission to monitor the stream on their properties, monitoring beyond the discharge source on school properties shall not be enforced.”*

As acknowledged and explained in HCC’s letter, *“The Conservation Commission has been advised, through legal counsel, that as a result of the Commonwealth’s passage of Section 280 of Chapter 238 of the Acts of 2024, signed by Governor Healey on November 20, 2024, the 2023 Order of Conditions governing the Hamilton-Wenham High School Athletics Project is still binding as its expiration fell within the two-year tolling window. Because the September 6, 2024 Enforcement Order only references the*

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2024 Order of Conditions, its continued viability has been called into question.” It is the opinion of both Gale and HWRSD that this interpretation is correct and the Enforcement Order is no longer valid. Furthermore, it is the position of HWRSD that HCC has no jurisdiction to require PFAS testing of the project materials. However, in the spirit of continued cooperation and in an effort to close out the open Enforcement Order to the satisfaction of HCC, we offer the following responses to HCC’s inquiries, provided in bold:

1. Please provide a narrative explaining the type of testing utilized and rationale for the methodology used for testing. The Commission would like to ensure that the “best available methodology” was followed in conducting and reporting the tests.

**Answer:**

It is Gale’s understanding the United States Environmental Protection Agency (EPA) has developed, validated, and published three (3) methods to support the analysis of PFAS in drinking water, as drinking water is the only consumer product currently subject to maximum contaminant level (MCL) regulations by the EPA and Massachusetts DEP. These methods include EPA 537 (2008), EPA 533 (2019), and EPA 537 Modified (2020). Additionally, the EPA has recently developed a separate method, EPA 1633 (April 2024), to test for PFAS compounds in wastewater, as well as other environmental media. While EPA 1633 has been formally published, it is not nationally required for Clean Water Act compliance monitoring until the EPA has promulgated it through rulemaking.

When testing for the most current list of chemicals regulated by the MA DEP and US EPA (PFHxS, PFHpA, PFOA, PFOS, PFNA, PFDA, HFPO-DA, and Gen X chemicals PFBS), the third-party testing agencies indicate they have utilized the following methods:

- **Synthetic Turf Carpet (DFE 46oz FG/LG) – EPA 1633**
  - Please refer to “Sprinturf Turf & Infill Sand PFAS Testing Binder,” page 6.
    - Document emailed to HCC on September 30, 2024.
- **Synthetic Turf Infill Sand – EPA 1633**
  - Please refer to “Sprinturf Turf & Infill Sand PFAS Testing Binder,” page 19.
    - Document emailed to HCC on September 30, 2024.
- **BrockFill – EPA 537 Modified**
  - Please refer to “Brock Organic Infill – Amended Report\_2024 1025,” page 12.
    - Document emailed to HCC on October 29, 2024.
- **Brock Pad (Shock Pad) – EPA 537 Modified**
  - Please refer to “Brock Shock Pad – Amended Report\_204 1025,” page 12.
    - Document emailed to HCC on October 29, 2024.

When testing for Total Organic Fluorine (TOF), the third-party agencies indicate they have used Bomb Combustion and Ion Chromatography (ASTM D4327), as well as Combustion Ion Chromatography (ASTM D7357). While the EPA and DEP drinking water MCL regulations do not apply to TOF, both methods utilized appear to have been published by the American Society for Testing and Materials (ASTM).

Ultimately, “best available methodology” is a subjective clause, subject to interpretation by the end user. It is Gale’s opinion that it is the responsibility of the professional third-party



**testing agencies retained for this effort to make this determination when developing their testing protocols.**

2. The testing was done on the following components of the turf fields: shock pad, turf material, and Brock infill. Although the Sprinturf testing is reported to include infill sand, the commission was not able to discern whether either of the contracted labs, RTIA labs, Inc. or Applied Tech Services, tested sand. Both lab reports appear to be for the turf materials. Please clarify if sand was included in the testing. Please provide a brief overview narrative of the materials in the turf fields on which the testing done and how that that conforms to the testing condition in the Order of Conditions.

**Answer:**

**Sand is included as a component of the synthetic turf infill materials (sand and BrockFill). One of the primary functions of this sand is to provide ballast, holding the synthetic turf carpet in place by weight throughout the center of the field where the carpet is not directly anchored to the perimeter curb.**

**The infill sand proposed for use on this project was tested by RTI Laboratories, Inc. Please refer to "Sprinturf Turf & Infill Sand PFAS Testing Binder," page 19.**

**The opening paragraph of Special Condition 19 states, "...the applicant will engage an independent testing laboratory to test the turf, infill, and shock pad...". Testing has been provided for the synthetic turf carpet, infill materials (BrockFill and sand), and shock pad (Brock Pad), in accordance with the wording of the condition. These test results are located within the following documents previously provided to HCC:**

- **Sprinturf Turf & Infill Sand PFAS Testing Binder.pdf**
- **Sprinturf Turf Carpet\_Total Fluorine\_2024 1025.pdf**
- **Brock Organic Infill – Amended Report\_2024 1025.pdf**
- **Brock Shock Pad – Amended Report\_2024 1025.pdf**

3. Please confirm that the tests for all the materials within the turf field were conducted consistent with the requirements in the Order of Conditions. None of the stormwater drainage system components were tested. Notably, there are a significant number of 12-inch flat panel drains composed of plastic materials that may be a potential source of PFAS that were not tested. Please explain why the drainage materials were not tested.

**Answer:**

**It is Gale's opinion that the testing for the turf system materials subject to the parameters of the Order of Conditions were conducted consistent with the requirements. The opening paragraph of Special Condition 19 states, "...the applicant will engage an independent testing laboratory to test the turf, infill, and shock pad...". Testing has been provided for the synthetic turf carpet, infill materials (Brock Fill and sand), and shock pad (Brock Pad), in accordance with the wording of the condition. Neither Special Condition 19, nor any condition within the OOC, requires PFAS testing of the stormwater conveyance infrastructure or any other proposed materials outside of the "turf, infill, and shock pad."**



**The HDPE flat panel drains and perforated perimeter HDPE collector pipes comprising the subsurface drainage system of the proposed synthetic turf softball field are typical construction materials used in landscaping, under roads, and around building foundations. These materials are not specific to synthetic turf related projects. HDPE drainage pipe is one of, if not the most common, pipe material utilized in the construction industry across all project types throughout Massachusetts. This material can be found throughout public roadways, commercial site developments, residential site developments, and so on.**

4. Not all of the PFAS parameters appear to be included in each of the material tests. Commissioners reported difficulty in matching the PFAS required to be tested with the lists of PFAS that were in the data results tables from the three labs. Additional clarification would be helpful because the tables of the PFAS tested by different laboratories are dense and do not appear to be organized for ease of review. The following specific concerns were noted:

- a. The Brock infill testing, 5/24/23, does not appear to include all the PFAS required. PFDA and HFPA-DA do not appear to be included.

**Answer:**

**Gale is aware the BrockFill testing dated May 24, 2023, is indeed missing PFDA and HFPO-DA. This was discovered upon receipt, at which time, Gale requested revised and more current testing be provided. On October 29, 2024, Gale issued the revised report to HCC, titled "Brock Organic Infill – Amended Report\_2024 1025." This report includes results for PFDA and HFPO-DA and is intended to fully supersede all previously provided BrockFill testing results, as was noted in the body of the October 29<sup>th</sup> email.**

- b. The Applied Tech Services, 8/28/24 testing does not appear to have included HFPO-DA, PFHpA, PFBS, and the PFA6 Sum.

**Answer:**

**The Applied Technical Services report is located within the final turf carpet and infill sand testing results package, titled "Sprinturf Turf & Infill Sand PFAS Testing Binder," on pages 14 through 16. However, this specific report section (pages 14 through 16) may be disregarded. At the original time of receipt of this report as an isolated document on September 10, 2024, Gale identified these apparent testing deficiencies and requested revised testing be provided. The revised testing is included in the document referenced above, "Sprinturf Turf & Infill Sand PFAS Testing Binder," pages 5 through 13, as performed by RTI Laboratories, Inc.**

- c. The RTI Labs Inc. testing 9/19/24 does not appear to provide the PFA6 Sum.

**Answer:**

**It appears the RTI Laboratories, Inc. testing dated September 19, 2024, and included in the final report titled "Sprinturf Turf & Infill Sand PFAS Testing Binder", does not provide a line item for the PFA6 Sum.**

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**It is Gale's understanding this sum is the total of its parts: PFOA, PFOS, PFNA, PFDA, PFHxS, and PFHpA, all of which are provided in the associated individual compound testing results.**

**Please note the text of Special Condition 19 does not specify reporting "PFA6 Sum" is required. The condition states, "The Commission expects a summary of all PFAS reported as a chemical class, rather than as individual chemicals, to be a component of the required testing and reporting regimen." It is Gale's opinion this requirement is satisfied by the Total Organic Fluorine results provided.**

We hope this response provides sufficient additional context with which to pursue the best outcome for this project and the Hamilton-Wenham Regional School District.

Best regards,

GALE ASSOCIATES, INC.

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