

Via Electronic Mail and US Mail

December 29, 2020



Erin O'Hare
Environmental Planner
Inland Wetlands and Watercourses Commission
Wallingford Town Hall
45 South Main Street
Wallingford, CT 06492

**Re: IWWC #A20-7.1 / 5 & 21 Toelles Road & Wharton Brook
Pfizer Inc. Soil Remediation Project**

Dear Ms. O'Hare,

On behalf of Pfizer Inc. (Pfizer), Woodard & Curran (W&C) is providing this letter in response to the Milone & MacBroom, Inc. (MMI) letter dated December 22, 2020 regarding the subject Inland Wetlands and Watercourses Commission (IWWC) permit application. MMI's December 22, 2020 letter was provided as a response to W&C's letter dated December 4, 2020. The December 4, 2020 letter provided responses to 13 comments provided in MMI's letter dated November 13, 2020. In MMI's December 22, 2020 letter, seven of the prior comments (C2, C5, C7, C8, C9, C10, and C13) were indicated to have been addressed by the December 4, 2020 responses, and no further discussion of these comments is required. Per the December 22, 2020 letter, six of the comments require additional responses and two new comments require responses. The six outstanding and two new comments are provided below in **bold** and the responses (both December 4 and December 29) follow each comment. A summary of the laboratory results and the laboratory reports from the supplemental soil sampling performed on November 24, 2020 are provided as an attachment. Revised Invasive Species Management Plan and revised project drawings are also attached.

We respectfully kindly request review and concurrence with our responses prior to the Inland Wetlands and Watercourses Commission meeting to be held on January 6, 2021.

REVIEW COMMENTS

Wetland Restoration

Soils

C1. November 13, 2020 comment

The plans and/or project reports are lacking a baseline soil chemistry analysis, including pH, total organic carbon (TOC), and macronutrients (such as available nitrogen and phosphorous) within the project's wetland soils to be excavated. These soil characteristics are extremely important to plant growth and survival. The chemical composition of the topsoil brought on site should reflect ratios of TOC, available macronutrients, and pH that is consistent with the conditions exhibited within the existing soils, which currently support a healthy native floodplain forest. The applicant should provide the targeted soil chemistry requirements for imported topsoil and



subsoil for this wetland restoration project. Comments have been raised by the Town regarding the textural class of the existing soils on site versus topsoil and subsoil imports as proposed by the applicant. We recommend that the soil texture for both topsoil and subsoil meet a fine sandy loam to loamy sand textural class. While soil texture is important there are other parameters that are equal or more important for developing a successful restoration project, including maintaining/preserving the existing seasonal hydrologic regime and providing appropriate soils with the necessary chemistry for healthy plant growth. To that end, the proposed grading plan appears to restore the grades (i.e., elevations) to conditions that equal existing site elevations. This grading should promote the preservation of the site's existing hydrologic regime. More information is required to comment on the chemical requirements of the imported topsoil and subsoils for this project.

December 4, 2020 response. The specified organic matter content for organically-enriched topsoil (8-12%) is based on available Site total organic carbon (TOC) data, as discussed in Section 2.2 of Appendix C (Wetland Restoration Plan). The specified organic matter content is consistent with recommendations in Army Corp guidance. Organically-enriched topsoil products typically consist of standard topsoil (sandy loam) blended with compost to enhance the organic content of the material. This typically results in a carbon and nutrient rich medium that is beneficial for seed germination and plant growth.

Additional soil samples were collected on November 24, 2020 to supplement available Site data. Six composite soil samples were collected from the Site wetlands and analyzed for TOC, TKN-nitrogen, nitrate, ammonia, total phosphorous, and potassium. Five composite samples were collected from the surficial organic-rich soils while one composite sample was collected from the underlying sandy soils. These data will be used to inform and adjust backfill specifications, if appropriate and consistent with soil conditions that will promote seed germination and growth of newly planted species.

Prior to construction commencing, the hydrogeologic regime, including micro features (streams, mounds) will be documented in a baseline survey. The three known stream features (seep near wetland flag WF-10 and WF-10; intermittent stream that is south of WF-4 and connected to the unnamed stream on the eastern side of the Site; and intermittent gully/channel along the eastern side of the two foot excavation area and south of the existing stormwater outfall) to Sheet C-000.

December 22, 2020 comment

We understand that based on the Applicant's date of supplemental soil sampling on November 24, 2020, it is likely that they are still awaiting the results of TOC and macronutrient analyses from the laboratory. However, without reviewing these results, MMI is unable to offer recommendations regarding the macronutrients requirements for imported soils for this project. We recommend that the results of the new soil analyses be submitted to the Town for review. In addition, the laboratory results from future soil imports shall be submitted to the Town prior to placement of soils within the wetland remediation area to confirm compliance with targeted soil chemistry goals.

We acknowledge that the Applicant plans to perform a preconstruction baseline survey to include a more complete representation of existing site microtopography including the three known stream features. This sheet has not yet been provided, so we are unable to comment on completeness/accuracy of this survey and updates to existing conditions



December 29, 2020 response

A summary of the laboratory results and the laboratory reports from the supplemental soil sampling performed on November 24, 2020 are provided as an attachment. A macronutrient and TOC laboratory report from a representative portion of future soil to be imported shall be submitted to the Town prior to placement of soils within the wetland. Given that the project will be an active construction project and to minimize extending the schedule of the construction project, it is requested that the Town review the laboratory reports within 7 calendar days. If no comments are provided by the Town within 7 days of receiving the laboratory reports, the soil will be able to be imported. Prior to construction, targeted soil chemistry goals will be developed as minimum values and/or a range of values since the chemistry of imported soil will have some level of variability.

The preconstruction baseline survey to incorporate a more complete representation of existing site microtopography will be performed at least one month prior to commencing construction activities. Updates to the existing conditions plan based on the results of the baseline survey will be provided to the Town.

C2. Comment has been resolved.

Non-native Invasive Plant Species Management

C3. November 13, 2020 comment

The non-native plant species management plan does not provide sufficient detail to assess the potential success or effectiveness of the restoration management goals and/or plan. The plan identifies existing and potentially occurring non-native species within the wetland restoration site but does not attempt to quantify in square feet the area of the project or wetlands currently occupied by these invaders. The non-native species management plan states a goal of "less than 20% (relative to native species)" cover of non-native species after the 10-year monitoring period, but it is unclear how that percentage compares to the current percentage of invasive species on site relative to native vegetation. A map depicting the areas of invasive species and quantification of the species coverage should be provided for review.

December 4, 2020 response. Figure 1 of the newly prepared Invasive Species Management Plan (see the response to comment C4) presents approximate coverage of two prevalent aggressive invasive species (common reed and Japanese knotweed). Cover of these species is based on mapping completed as part of previous investigations. A cover estimate of these invasive species is provided in the Invasive Species Management Plan. The goal of less than 20% relative cover of invasive species is a reasonable one given the excessive cover of aggressive invasive species throughout the adjacent floodplain and upland areas.

December 22, 2020 comment

After our site inspection and review of the map showing areas of high-density cover of common reed and Japanese knotweed in the newly prepared Invasive Species Management Plan, MMI maintains the recommendation that the Applicant develop a plan that can ensure invasive species cover be limited to no more than 5 percent relative cover during the duration of the 10-year monitoring period. We understand that



after the 10-year monitoring period expires that populations of invasive species will likely recolonize the area; however, it is our professional opinion that with persistent targeted management efforts and proper use of mechanical and chemical treatments a lower amount than 20 percent relative cover can be achieved at this site during the monitoring period.

December 29, 2020 response

The purpose of the project is to improve the environmental conditions at the site through removal of nickel-impacted soil. Through this soil removal, the amount of invasive species will also be significantly reduced. The current percentage of the proposed excavation area with just the high-density invasive species cover is approximately 28%. There are other areas with invasive species in and near the excavation limits. Given this, we anticipate a reduction of invasive species cover to 5% may be difficult to achieve. We propose a 10% relative cover of invasive species to be used as the metric for this project, with the goal of achieving less than 10%.

The restoration plan developed for the ACOE permit application included that monitoring would be performed for up to 10 years, and may be less only if restoration metrics are met earlier. We propose that this timeframe and criteria also be used for this Wallingford Inland Wetlands Watercourse Commission permit.

C4. November 13, 2020 comment

The non-native species management plan does not sufficiently describe the methods that will be implemented to remove invasive species on site. Specifically, a preconstruction invasive species management plan should be developed prior to finalization of the complete site plan. The preconstruction invasive species treatment plan should address the major areas of invasive species on site to be managed as well as species-specific approaches to be taken during project implementation. For instance, common reed (*Phragmites australis*) spreads through underground rhizomes that may grow beyond the soil excavation depth. Does the applicant plan to remove rhizomes that occur below this depth in both the 6-inch- and 2-foot-deep excavation zones? Will invasive species management extend into the adjacent wetlands and uplands that border the restoration area? The spread of invasive species from adjacent areas may be problematic once the site is disturbed. Japanese knotweed and common reed are found in immediately abutting areas. Failure to properly address non-native invasive plant species prior to and during construction can greatly impact the success of the restoration project. The applicant should provide a more refined invasive species management plan tailored to this specific site.

December 4, 2020 response. A separate Invasive Species Management Plan has been prepared and is attached. Please note that many details of the plan will be finalized in consultation with the Contractor in advance of the construction work and will be dependent on the season in which the work is ultimately performed.

December 22, 2020 comment

In addition to the other steps outlined in the Invasive Species Management Plan, MMI recommends the Applicant establish a buffer zone around the limits of excavation in which invasive species will be managed using nonmechanical control methods only.



This herbicide-only zone outside of the focal restoration area will be a lower-impact means of reducing the propagule source of invasive species from outside the remediation area. In addition to mechanical invasive plant management within the excavation area, keeping this buffer zone clear of invasives will slow their ability to recolonize the wetland remediation area and provide an advantage to newly planted native species until they are established.

Prior to construction, a map should be provided to the Town showing the proposed monitoring sites, which should be distributed across the wetland remediation area, including in those areas currently invaded by non-native plant species. A vegetation survey should be completed within each of the nine plots prior to construction and should serve as a baseline of comparison during the 10 years of postremediation monitoring.

December 29, 2020 response

A buffer zone of 20 ft width around the limits of excavation has been incorporated into the Invasive Species Management Plan in which invasive species will be managed using herbicide-only treatment. The herbicides will not be applied along the area where the Ordinary High Water Line crosses the excavation area. This activity has been incorporated into the attached Revised Invasive Species Management Plan.

The vegetation survey will be completed and the map prepared as indicated in the comment. The Invasive Species Management Plan has been updated to include this requirement.

Planting plan

C5. Comment has been resolved.

C6. November 13, 2020 comment

The applicant should provide tree protection details for those 15-inch DBH trees that will remain within the wetland remediation area. Damage to tree trunks and roots must be minimized to the maximum extent practicable.

December 4, 2020 response. Prior to beginning site construction, the Contractor will be required to submit a tree protection plan for review. The following tree protection notes have been added to Sheet G-001.

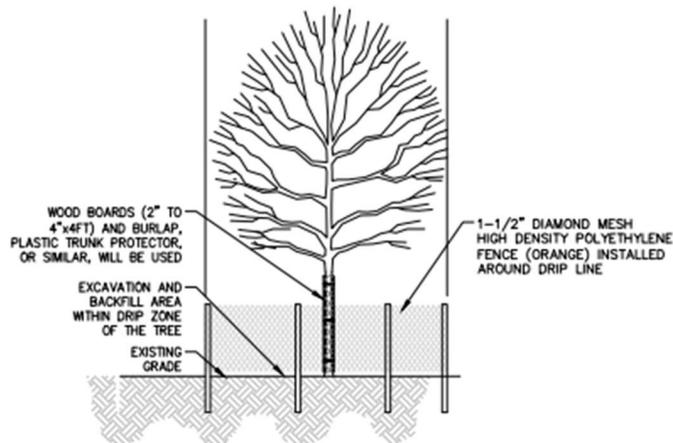
Tree Protection Notes

1. Before beginning any site construction, the Contractor shall develop and submit a tree protection plan to the Engineer for review. The plan will include measures as described below, including remedial work to trees, if necessary.
2. In areas where active excavation is to occur in the vicinity of trees to be preserved, the following measures shall be employed.
 - a. Temporary safety fence shall be installed around the perimeter of the drip zones of the trees. Fencing shall be resecured during active excavation. The drip zone radius will be determined in consultation with the Engineer.
 - b. As shown in the drawing details, a temporary trunk protection device will be installed on the trees to be preserved.



- c. No materials, vehicles or heavy equipment may be stored or stockpiled within areas enclosed by the temporary safety fence.
- d. No vehicles or heavy equipment may be driven, operated, or parked within areas enclosed by the temporary safety fence.
- e. Areas enclosed by the temporary safety fence can not be used as routes for site traffic.
- f. Excavation with heavy equipment is not permissible within the root zones.
- g. Following excavation operations, areas at tree roots shall be backfilled.
- h. As possible, roots shall not be left exposed overnight.
- i. Backfill around tree roots shall be hand compacted in place to fill voids.
- j. Extreme care shall be taken to avoid damage to trunks, branches and roots. Damage caused to trees shall be immediately remedied by the Contractor. Remedial work may include pruning, wound treatment, cabling, or additional measures as determined by the Engineer. Contractor shall engage a licensed arborist to perform remedial work.

The following tree protection detail has been added to Sheet C-202.



NOTES:

- 1. NO MATERIAL OR EQUIPMENT SHALL BE STORED OR STOCKPILED WITHIN THE AREA SURROUNDED BY TREE PROTECTION FENCING.
- 2. FENCE MUST REMAIN AND BE MAINTAINED THROUGHOUT ENTIRE CONSTRUCTION PHASES DURING WHICH CONSTRUCTION MAY AFFECT TREES.

TREE PROTECTION

NOT TO SCALE

December 22, 2020 comment

Comment addressed, and Tree Protection Notes have been reviewed. We recommend adding this final measure to Note 2: "Weekly site inspections during the course of excavation shall be performed to ensure damage to remaining trees is minimal and has been satisfactorily addressed in a timely manner by the contractor."

December 29, 2020 response

The following note has been added to the Tree Protection Notes on Sheet G-001.



Weekly site inspections during the course of excavation shall be performed to ensure damage to remaining trees is minimal and has been satisfactorily addressed in a timely manner by the contractor.

C7. Comment has been resolved.

Monitoring

C8. Comment has been resolved.

Plan Drawings

Site topography

C9. Comment has been resolved.

Hydrology

C10. Comment has been resolved.

Erosion and Sediment Control Plan

C11. **November 13, 2020 comment**

From our observations during the site walk, it was noted that the proposed cofferdam site was not exceptionally wide and currently hosts riparian trees and vegetation that would in all likelihood need to be removed in order to accommodate the width of even a modestly sized cofferdam as shown in the applicant's project support materials. In our extensive experience with working within and along watercourses, the best means of controlling water is through less invasive cofferdam alternatives than presented to date. We recommend that the applicant review alternatives such as supersac sandbags or some other similarly maneuverable water control that would preserve more of the bank and riparian buffer. The reestablishment of vegetation of this stature along the channel will take a significant amount of time, especially if the removal of existing trees increases the risk of bank or floodplain erosion.

December 4, 2020 response. On Sheet G-001, the note regarding flood protection has been modified to include the following: Flood protection measures to be proposed by the contractor need to control water and to minimize tree removal. The use of supersac sandbags or similarly maneuverable water control shall be considered by the Contractor and proposed for review by the Engineer.

The use of supersac sandbags or similarly maneuverable water control will be added to the Contingency Plan Rev. 1, dated November 2020.

December 22, 2020 comment

Comment addressed. In a prior comment response to the Town on November 3, 2020, the Applicant stated that "sandbags typically require a larger footprint to achieve the same flood protection height as other devices. The larger footprint could result in



greater impact on the area." If this statement holds true in the case of the present work, we would expect the Applicant to demonstrate that they are choosing the flow control option available with the least ecological damage to the watercourse.

December 29, 2020 response

During final selection of the flow control option, an evaluation will be performed to confirm that the flow control option with the anticipated least ecological damage to the watercourse will be selected. The contractor specification for this option will include a requirement that minimization of ecological damage to the watercourse will be a selection factor. Moreover, an analysis of the footprints between different options will be performed.

National Flood Insurance Program (NFIP) Compliance

C12. November 13, 2020 comment

The plans appear to propose grading (cut and fill) within a FEMA-regulated floodway. While proposed contours are depicted, no volumetric analysis is provided to ensure that there will be no net fill in the floodway. While the project narrative states the intention to match existing grades, the project plans (from which the project will be constructed) contain no such information. We recommend that a minimum of four cross sections are added to the plan set to depict the intended cut and fills in various locations throughout the floodplain/floodway and that cut/fill volumes be provided.

December 4, 2020 response. A new Sheet C-007 has been added to the drawing set and is attached. A total of nine cross sections depicting the existing and proposed grades are shown. As shown by the cross sections, there is minimal change in grades. A cut/fill analysis was performed and there will be a net 3 cubic yard cut across the excavation area. Within the floodway, there is a net 0 cubic yard cut/fill. This cut/fill summary is provided on Sheet C-007.

December 22, 2020 comment

Comment addressed. We recommend that following completion of the project an as-built survey comparing existing topography versus postconstruction topography and supporting computations be performed and submitted to the Town to demonstrate compliance with the requirement of no net fill within the floodway. This survey work shall be completed and stamped by a Licensed Surveyor and computations reviewed and stamped by a Professional Engineer.

December 29, 2020 response

An as-built survey comparing existing topography versus postconstruction topography and supporting computations be performed and submitted to the Town to demonstrate compliance with the requirement of no net fill within the floodway. This survey work shall be completed and stamped by a Licensed Surveyor and computations reviewed and stamped by a Professional Engineer.

C13. Comment has been resolved.

December 22, 2020 Additional Comments Based on Revised Plans



- C14. We recommend the Town require the following four performance bonds be requested of the Applicant and held by the Town as special conditions of approval to be returned to Applicant upon satisfactory compliance with proposed project guidelines:**
- 1. Sedimentation and erosion control bond¹ (\$33,000)**
 - 2. Wetland plantings bond² (\$75,000)**
 - 3. Invasive species management bond (\$40,000)**
 - 4. Postrestoration monitoring/reporting bond³ (\$30,000)**

¹ Value estimated based on Connecticut standards for comparably sized projects (approximately \$15,000 per acre)

² Value calculated based on 75% rate of standard plant material and labor costs for the proposed planting plan

³ Value estimated based on MMI experience with postrestoration monitoring for comparable sites (approximately \$6,000 per monitoring year)

The Applicant is conducting internal review and a response to this comment will be provided in a follow-up letter.

- C15. Herbivory is a highly influential factor in the failure of many local restoration projects. The applicant identifies within the Wetlands Restoration Approach – Contingency Plans that significant damage from wildlife will be mitigated by installing protective barriers (cages) around plantings. It is not clear whether the cages will be installed immediately following planting or will be installed following signs of herbivory damage. During our site investigations, white-tailed deer were observed passing through the wetland remediation area. MMI would recommend that cages be installed immediately following installation of the plantings. A note and detail indicating this recommendation should be added to Sheet 9 "Wetland Restoration Plan."**

Deer fence or individual cages will be installed immediately following planting. A new General Note 5 and details for the deer fence and individual cages has been added to Sheet C-005 (Wetland Restoration Plan). A revised Sheet C-005 (Wetland Restoration Plan) is attached.

The deer fence and cages will be maintained during the first growing season following post-restoration.



Sincerely,

WOODARD & CURRAN, INC.

A handwritten signature in blue ink that reads "Lucas Hellerich".

Lucas Hellerich, PhD, PE, LEP
Senior Technical Practice Leader and Engineer

/LH

Enclosure(s)

Summary of laboratory analytical data and the laboratory reports for supplemental soil sampling performed on November 24, 2020
Revised Invasive Species Management Plan
Revised project drawings

cc: Matthew Sanford, Milone and MacBroom, Inc. (electronic only)
Samantha Somers, Pfizer Inc.
Jack Markey, W&C
Kyle Apigian, W&C

PN: 0232596.00