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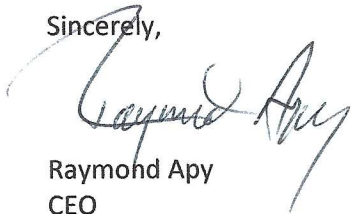
April 22, 2022

RE: Saratoga Biochar Solutions, LLC
Site Plan Application – Response to TPB Member Concerns

Dear Moreau Planning Board Members,

I have reviewed Board Member Purdue's 4/8/22 message that was sent in advance of the cancelled TPB public hearing on 4/18/2022. To make my response clear, I have responded to each of Board Member Purdue's eight points along with her opening and closing statements separately within the pages following this letter, noting my responses in **bold font**. Hopefully, these responses will clarify any misunderstandings.

Sincerely,



Raymond Apy
CEO
Saratoga Biochar Solutions, LLC

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If it works, applicant's project may address some of the issues presented by municipal sewage disposal in the region it will serve.

When this facility works, it will be the only biosolids disposal solution in the United States that effectively remediates the material into a beneficial use product. In addition, it will also be the most environmentally friendly solution to the problem.

After building our facility, our intent is to build additional facilities in the State of New York, and the region. We chose New York as a starting place because New York has the greatest waste disposal problem of any State in the United States. In short, it does not address *some* of the issues presented by municipal sewage disposal in the region, it addresses ALL of the issues.

However, the project warrants careful review to ensure the health of our community. That review should be facilitated by the Board's engagement of an independent consultant with relevant expertise and, if deemed appropriate after consultation with that expert, a full environmental impact study.

The Moreau TPB has already conducted a lengthy and thorough SEQR review that was procedurally impeccable. A majority of the TPB did not agree that a full environmental impact study that would result in a 1-year delay was warranted. The TPB also concluded that the NYSDEC has the best expertise available to effectively reply to the questions raised by various TPB members. This is all now part of the TPB's public record.

The TPB directly engaged the NYSDEC to better understand the DEC's process of air emissions permit application evaluation, issuance, and ongoing compliance. This meeting was offered, organized, and conducted by the TPB administration with full TPB awareness and participation. The outcome of that meeting was favorable in that it enhanced the TPB's review process by using a public resource with deep subject matter expertise in air emissions permitting, compliance monitoring, and enforcement. NYSDEC is arguably the most conservative (toughest) environmental agency in the United States. As a result, in its March 7, 2022, meeting, the TPB voted by substantial majority to declare a negative declaration on the Environmental Assessment Form that was submitted to the NYSDEC as part of the SEQR obligation that the TPB has as lead agency.

At this point, our permit application is finally getting the professional review by the NYSDEC that it deserves. The NYSDEC is a non-politically biased institution that is in the best position to provide a qualified third-party technical review. The TPB employed a procedurally impeccable review process that went through the EAF form multiple times after thoroughly addressing each of the concerns and comments raised by Board Member Purdue.

- 1. The initial issue is that the applicant's biochar project technology is untested. This facility is the first of its kind. The environmental impacts of its operation can only be projected by theoretical modeling. Actual emissions and the reliability of the proposed emissions and solid waste controls are not known as this time.*

Member Purdue's statement that we have an untested biochar project technology is incorrect. We have done extensive material testing and gas testing (of the synthesis gas produced) in a pilot-scale kiln that our manufacturer typically uses for testing all materials for design purposes. In all tests, we utilized verifiable third-party professional laboratories to conduct analyses and provide us with results. The kilns and thermal oxidizers incorporated in our processing system design are used broadly in industrial applications and have an extensive track record for reliably performing pyrolysis on numerous materials and thoroughly combusting the syngas generated from the low-emission process. The dryers, material handling systems, and air treatment systems are already

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employed on biosolids in many metropolitan areas nationally. Furthermore, our air treatment system is more robust than any other biosolids drying operation in the region, and far more ecological by design.

The extensive material testing was required by our manufacturer to supply a performance guarantee of our entire process. Our chosen manufacturer has been designing and implementing thermal treatment systems for over 140 years. The performance guarantee they offer ensures throughput and emissions thresholds which we used as a basis for the air treatment system design, and ultimately the air permit application with the NYSDEC. The syngas testing has allowed us to provide a conservative emissions profile that is guaranteed by the manufacturer. The dispersion modeling may be considered “theoretical,” but it is the same “theoretical” process used for air permit applications since most of the factors are location specific.

Member Purdue’s statement that the environmental impacts of our proposed facility’s operation can only be projected by theoretical modeling is also incorrect. In the March 7, 2022, TPB meeting we to a permitted biosolids drying and pyrolysis facility at the Schenectady WWTP in NYS DEC Region 4. The Schenectady Biowaste Pyrolysis Project will treat biosolids obtained from publicly owned treatment works, including the Schenectady WTP, using thermal drying processes and a pyrolysis unit. The resulting syngas generated from the pyrolysis unit will be directed to a flare. The primary difference is we are not simply flaring the syngas generated. Instead, we are recovering the heat and using it to dry the biosolids. Furthermore, we are removing sulfur dioxide due to the larger scale of our facility. Schenectady, NY, is only 37 miles from Moreau, NY.

Our thermal processing and air treatment processes are tested and have been in production across multiple industries for many decades. Moreover, as described and committed to the TPB already, we will receive manufacturer guarantees on all critical equipment. Most notably - and in the context of member Purdue’s stated concerns - from our European air treatment system manufacturer, CondorChem Envitech. CondorChem has been in the business of designing and implementing effective and highly successful industrial air emissions treatment systems for three decades and is currently recognized as a global leader in emissions control systems innovation and success. <https://condorchem.com/en/company/>

Last and far from least, when issued, our air permit will surely contain very stringent NYSDEC mandated compliance testing and reporting measures, particularly in the first year of operation and after each production line is added. We have taken an extremely conservative approach regarding our initial capacity as it is only one-third of our projected facility capacity. We are certain we will have to demonstrate that our air emissions are accurate prior to adding any additional capacity. We anticipate numerous stack tests for the first production line and additional stack tests every time a new production line is added. While stack testing is very expensive, we too desire the information that such tests will deliver as it will be essential to us as well.

- 2. The project equipment, process and systems are complex. The project will produce odors, SO₂, ammonia, nitrogen dioxide, and CO₂, and entail supply and storage of a large quantity of sulfuric acid. In addition, municipal sewage is known to be contaminated with PFAS, carcinogenic chemical compounds that are virtually indestructible. It is not known if the processes employed by this project will destroy the PFAS or cause further dispersal in the air and water.*

Relatively speaking, our process pales in complexity to the Hexion formaldehyde facility that operates across the street from our proposed facility, and our process does not produce any hazardous materials as outputs. Furthermore, the only hazardous material we employ in the process is sulfuric acid which is used to remove ammonia odors from our air emissions. Ammonia

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removal is entirely optional as we would not emit enough ammonia to require removal. However, we plan to include ammonia removal in our flagship facility even though it is not commonly included in air treatment systems for biosolids dryers, to eliminate potential odor concerns. Moreover, the NYSDEC has containment requirements that need to be in place to handle sulfuric acid. Our use is minimal, requiring one to two monthly deliveries at full capacity (i.e., three production lines). We will also recycle the byproduct of the ammonia scrubber (ammonium sulfate) into our carbon fertilizer product to ensure its fertilizer value is not wasted by sending it down the sewer. The ammonium sulfate is itself a valuable fertilizer product enhancement.

Biosolids pyrolysis and gasification have become hot research topics over the past decade. There is an abundance of studies on just about every aspect of our process. The extensive list of studies all describe pyrolysis and gasification methods as "low-emission" methods for remediating biosolids. The odor profile of the proposed facility is primarily driven by the biosolids drying process which is already commonly employed in metropolitan areas throughout the region and country. We have opted for a far more robust air treatment system than anything currently employed in the U.S. in a biosolids drying operation as our proposed project in Moreau is intended to be a flagship facility that achieves absolute success. The entire building is designed to contain fugitive odors and even includes an indoor receiving area with 40' clearance for the trucks to unload inside. Our selected air treatment supplier, CondorChem Envitech, one of the most prominent and successful air treatment manufacturers globally, will provide emission guarantees for sulfur dioxide (SO₂), ammonia (NH₄), particulates, and odors. Other projected emissions from the facility, such as nitrogen dioxide (N₂O) and carbon dioxide (CO₂) do not exceed NYS regulatory thresholds requiring further remediation. Furthermore, we are only installing one-third of the intended capacity in the first project phase, which ensures that our emissions will be materially below any regulatory threshold that would trigger a concern for human health or the environment.

There is extensive research on PFAS compounds in biosolids, and how they behave at the operating temperatures we achieve in our process. Such research demonstrates PFAS compounds are remediated from the material within our operating temperature range. Furthermore, there is an abundance of scientific research that concludes PFAS is most volatile in a gaseous state (like most molecules). Thus, by separating the PFAS from the solids, and getting it into a gaseous state, the PFAS can be successfully treated in a thermal oxidizer that operates within a defined temperature range. We have outlined this for the NYSDEC. They are reviewing our applications for solid waste handling and air permits. We have also supplied material tests that confirm our ability to remediate PFAS from the carbon fertilizer produced.

Moreover, the PFAS concentrations in this material are minimal. Risk assessments by states (ME, NH, NY, VT, etc.) have determined that direct contact, inhalation, or ingestion of typical biosolids and other recycled residuals pose no significant health risk, including from the traces of PFAS they contain. Typical levels of PFAS in modern biosolids are ~20 times less than the most stringent direct contact standard for soils, which is 600 ppb for PFOA and 440 ppb for PFOS for industrial site use in NYS. Only in a few worst-case scenarios have wastewater and biosolids been implicated in PFAS water contamination at levels of concern (e.g., near or above 70 ppt in water). These rare cases are where there have been ongoing discharges to sewers from industrial facilities or fire-fighting using significant volumes of PFAS. In response to these rare situations, PFAS levels in wastewater and biosolids have been reduced efficiently by investigating industries discharging to the sewer system and stopping their discharges through industrial pretreatment requirements and other source controls.

We do not receive any fire-fighting foam, carpet, or other materials that contain large amounts of PFAS. The traces of PFAS in the incoming biosolids is literally the PFAS that has already passed through human beings or has been washed down kitchen sinks from cookware, fast food

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packaging, the coatings on paper plates and paper cups, etc. In the event we did not receive the biosolids, they would be landfilled, land applied, or composted; reintroducing PFAS back into our food and water supplies.

We have taken every reasonable precaution to ensure PFAS is not emitted from our stack. In the event PFAS emissions are identified in our exhaust gas in any concentration that could possibly harm human health, we have further identified and left space available to increase our air treatment system's capacity to handle it.

The entire point of our technology is to remediate PFAS and other contaminants in biosolid wastes that are currently being introduced to our food and water supply when they are spread on agricultural land directly, or as composted material, or landfilled. Current biosolids disposal methods directly contribute to the PFAS found in biosolids as the disposal methods themselves re-introduce PFAS back into our food and water supply.

The proposed facility will operate at the minimal temperature required to eliminate PFAS to produce as much avoided emissions (i.e., Carbon Fertilizer) as possible. The Carbon Fertilizer produced by our process recycles the avoided emissions (i.e., carbon and nutrients) and makes them into a highly useful fertilizer. Carbon Fertilizer restores soil health by restoring organic matter and carbon in our agricultural soils while supplying farmers the opportunity to reduce nutrient consumption. This will help reduce the use of chemical fertilizers that are hazardous to human health and have been linked to everything from algae blossoms in waterways to many neurological diseases. We are proposing something that any environmental scientist would herald as a material improvement in the environment and human health. We will give regulators a proven biosolids disposal solution that will enable them to pass legislation ending the harmful land application of biosolids.

3. The project requires air emission and solid waste management facility permits from the NYDEC. As DEC has never permitted a project of this type, it has retained a biomass expert itself to assist in its evaluation of the permit applications. I am unaware of the status of the permit applications at this time or the conditions that DEC may include in its permits if issued.

The NYSDEC is familiar with our process as they have permitted a similar project in Schenectady, NY (see response to 1st point above). Furthermore, the NYSDEC has specific sections of the solid waste regulations that address biosolids drying and pyrolysis.

- 6 NYCRR Part 361-3 has specific requirements for the management of biosolids.
- 6 NYCRR Part 362-1 has specific requirements for solid waste management facilities that employ pyrolysis for thermal treatment of waste materials.

We are unaware of any outside expertise the NYSDEC may have engaged to review our application. However, it is not uncommon for permitting organizations to get second opinions to validate their findings. In any case, that should give the Moreau TPB additional comfort, as such 3rd party (to DEC) expertise is being brought into the permit review process to help review and validate.

The NYSDEC is in the process of evaluating our permit applications and has not yet issued permits nor determined any special conditions that may be required. NYSDEC has asked us for supplemental information relative to the SWMF permits which we have provided. They have also and most recently asked for supplemental information for our air permit application, which we are in the process of preparing a response. Permit issuance will include compliance standards and reporting requirements. We fully anticipate the NYSDEC to provide a permit for a single production line (i.e., one-third of our capacity), which would require modification as we phase in a second and

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third production line. This gives us and the NYSDEC the opportunity to verify emissions prior to proceeding with additional capacity. We fully anticipate repeating the testing procedures prior to installing the second and third production lines.

4. In December, the Board acknowledged that it did not have the technical expertise to assess the impacts of this project, and the applicant agreed to fund the cost of a consultant to assist the Board. While I had understood that information was being gathered to prepare a scope of work for the consultant, no consultant has been retained.

During the TPB's consideration of hiring a consultant to review these matters, the suggestion was made by the TPB itself to engage NYSDEC directly. This direct engagement with the NYSDEC served to provide a non-biased, third-party insight from an engaged, responsible, and active stakeholder. This can all be confirmed in the transcripts from these public meetings. The NYSDEC is the most qualified party to conduct a permit review as it has the technical expertise and responsibility to assist local governments. It is the NYSDEC's job to ensure that the environmental impacts of the proposed facility have been assessed and are not significant, as documented by the EAFs, and confirmed in the negative declaration issued by the lead agency (i.e., the Moreau TPB).

5. Instead, after determining that the project presents potentially moderate to large impacts, the majority of the Board relied on the issuance of the DEC permits alone as sufficient mitigation of the project's adverse impacts and issued a negative SEQR declaration in March.

The execution of the EAF was procedurally impeccable. Each section in the EAF was extensively discussed in the March 7, 2022, TPB meeting. In Section 2 of the EAF the TPB accurately characterized each potentially moderate to large impact. Part 3 of the EAF indicates that although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the conditions which will be required by the lead agency. There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. The NYSDEC permit conditions and compliance oversight were identified as the mitigation measures as they are the permitting agency that will be monitoring the facility to ensure the impacts are avoided or substantially mitigated. In short, the TPB has gone through the EAF twice during the March 7, 2022 meeting alone, and three times in total. The Moreau TPB has reviewed this project for 8 months and has indeed given it the "hard look" required by the SEQRA, particularly after seeking additional information from the NYSDEC. Now the NYSDEC is giving our permit applications the "hard look" that is required prior to issuance of permits and permit conditions.

6. NYSDEC representatives who spoke with members of the Board in January indicated that its permit process is not the equivalent or a substitute for the SEQR review to be undertaken by the Planning Board as the lead agency. The DEC permits limit pollution to regulatory thresholds. They are, in effect, licenses to pollute. For these reasons and in the absence of independent expert advice on the project's impacts, I disagreed with the majority of the Board that compliance with DEC permits sufficiently mitigated the adverse impacts of the project for purposes of our SEQR review to support a negative declaration.

Mike Sundberg, the NYSDEC representative on the TPB call in January, was correct in stating that the DEC's permitting process is not a substitute for SEQRA review, and no one has suggested that it is. The SEQRA inquiry into any project development involves an evaluation of the significance of a wide variety of potential impacts, such as desirability of proposed use (zoning compliance), location, traffic, noise, lighting, utility capacity, etc., which are best made by the local planning

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board as lead agency. In this case, the TPB took the most appropriate course of action for addressing questions about potential impacts that fell outside their expertise by coordinating with the DEC. That is what “coordinated review” as contemplated by SEQRA means. The DEC’s application process is supplemental to, and in furtherance of, SEQRA on this narrow scope of process matters. The limiting factors imposed in any permit, if granted, are predicated on thresholds established by DEC based on science, advice of health and safety experts, and experience over time.

NYS DEC regulatory thresholds were conceived of and are enforced to safeguard human health and environment. The SEQR process is an initial part of the permit review process, and not a substitute for it. The TPB wisely sought expert interpretation and guidance offered by the NYSDEC, which is charged with issuing regulations regarding the SEQR process. The NYSDEC requires that the SEQR process to be complete as part of its permitting process prior to professionally analyzing the submitted applications and issuing permits with conditions that it will oversee compliance for. This includes any mitigation required to avoid or substantially mitigate any potential significant impacts identified during the SEQR process.

Of note, the NYSDEC permit application review process is the most non-biased, third-party, independent expert assessment of the proposed facility that anyone could possibly hope for. Furthermore, the permits issued by the NYSDEC are designed to limit pollution levels that are protective of human health and the environment, not to encourage pollution as a “license to pollute.”

7. The project will also use large quantities of public water – more than 30,000 per day, and discharge large quantities of wastewater into the public wastewater system - more than 29,000 gallons per day. These quantities are almost 9 times the thresholds set by the 1991 GEIS for the Park, which requires a further determination as to whether additional environmental review is warranted. The applicant has submitted reports on water and wastewater which should be independently reviewed. Consideration should also be given to the long-term implications of allocating such substantial capacity to this one project.

Upon review of page 4 of the 1991 GEIS, the proposed water and wastewater consumption quantities are 75,000 gallons per day. Moreover, the industrial park was created to support many such businesses, and it has been advertised to the applicant by the Town of Moreau and the Moreau Industrial Park LLC as having the utility infrastructure to support ours as well as many other industrial/manufacturing zoned businesses. The capability of the Park, Town of Moreau, and the City of Glens Falls’ water and wastewater delivery and treatment infrastructure has been vetted and verified through the appropriate authorities and with the planning board itself, all of which have concluded that it is capable of handling our proposed facility. The amount of water may seem large, but it is insignificant to water and wastewater facilities that are designed to process millions of gallons of water per day. The Glens Falls wastewater treatment facility has even mentioned our wastewater stream is somewhat desirable for their treatment process.

8. A project in Taunton, MA, that is like applicant’s project uses a gasification process to manufacture a biochar product from dewatered municipal sewage. That project is presently under review through an environmental impact study. The state and local governments and its citizens have been engaged in a public discussion with the project sponsor as part of that study. We might benefit from the same process and public engagement.

The proposed Taunton, MA, gasification facility the Member Purdue references is an Aries Clean Energy project which is very similar to the facility that Aries was already permitted and built

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at Linden Roselle Sewerage Authority in New Jersey. We already provided information to the TPB in our January 2022 supplemental information submittal and discussed it at the TPB meeting on March 7, 2022. That submittal compares our proposed facility to Aries existing facility in Linden, NJ. The NJ facility achieved mechanical completion in late 2021 and is much farther along than the referenced Taunton, MA, proposed project. The Aries project in Linden, NJ, has already proven the model of using gasification as a viable thermal treatment option for treating biosolids and breaking down PFAS and other dangerous chemicals to effectively clean the emissions air stream. We are confident that similar review and comparison by MA local government, state regulatory agencies and engaged citizens will have the same positive conclusions. The same process and public engagement has been conducted for this proposed facility in the SEQR review, documented in the Environmental Assessment Forms, and concluded with a Negative Declaration of significant impacts.

In addition, we have chosen to utilize pyrolysis versus gasification as a thermal treatment method, despite its additional operating costs, because our extensive testing and analysis has indicated we can reduce air emissions further and recover more Carbon Fertilizer product than we could with a gasifier. We know this as our company President has worked with a similar gasification system to remediate manure and other types of biomass. Furthermore, pyrolysis allows a greater level of process control and is more effective at recovering solids from the process. None of the solids in our process are directly combusted as they would be in a gasification furnace. Our pyrolysis process focuses on “maximum resource recovery” and therefore extracts less energy from biosolids than the Aries process, resulting in our process producing even lower air emissions than the Aries process. It is evident that Aries is rapidly outpacing our development efforts and proliferating an inferior technology at a higher cost to the environment and human health, which is why time is of the essence to us.

Lastly, the Town of Moreau has benefited from an extensive review process and public engagement as our project has been under review in a public setting for over eight (8) months. There is a common misconception that public engagement and the environmental review does not occur unless there is an EIS. The coordinated review between the Moreau TBP and the NYS DEC is indeed ongoing for final site plan approval and the necessary regulatory permits. We are going through the public engagement process now in the form of a second public hearing.

In sum, I encourage the Board to take a step back before giving its approval and reconsider the implications of this project with the assistance of an experienced, independent consultant. In the process, we might also understand the risks and benefits of the project and methods to prevent or mitigate incidents and impacts and to protect our community.

The TPB has responsibly taken several steps back in its lengthy and thoughtful consideration of our site plan application, including: 1) a second EAF review, 2) a NYSDEC meeting to better understand the air permit process and compliance management, and 3) a second public hearing. The NYSDEC is further evaluating the process, risks, and benefits of the project, along with methods to prevent or mitigate potential incidents and impacts identified in the SEQR review. The sole purpose of NYSDEC’s permit process is to expertly evaluate mitigation measures for potential impacts included in the permit applications, and to approve permits with conditions that will be protective of human health and the environment. Therefore, the NYSDEC has the necessary expertise to make these evaluations and analyses as a civil service to the TPB and the community it represents.

While we have done our best to summarize answers to member Purdue’s concerns, we have found no new requests for information in the points member Purdue has presented, as addressed herein. Furthermore, we do not see any new information being brought to light that has not already been



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taken into account by the TPB. We are, and have been, entirely open and transparent with the Moreau Town Planning Board and have done our best to respond to all requests for further information on our project. If any new questions or concerns need to be addressed by us, please let us know as soon as possible.