

Project Memo

To: Robert D. Klavoon, PE
Co: Wendel
From: James B. Gannon, AIA NCARB
Date: July 9, 2021
Re: Plug Power Site Plan Engineering Review Comments



Mr. Klavoon:

The review and assistance regarding the Plug Power submission package to the Town of Alabama, NY for Site Plan Approval is most appreciated. Please note that the project team, on behalf of Plug Power, would like to note that the submission package submitted May 26, 2021 was prepared based on the Town of Alabama, NY published site plan review standards (Zoning Section 808). The project team continues to coordinate with the GCEDC's previous and continued efforts regarding the development of the WNY STAMP site. We believe the site plan submission package to:

- Be harmonious to the Town of Alabama and the proposed WNY STAMP site long range plan.
- Provide safe vehicular circulation between the site & street, including emergency vehicle access.
- Provide adequate interior circulation, parking & loading facilities; with attention to pedestrian safety and emergency vehicle access.
- Provide adequate landscaping and setbacks to achieve compatibility with, and protection of, adjacent residential uses.
- Provide adequate municipal facilities (through continued efforts by GCEDC and WNY STAMP development coordination) to serve the proposed water supply, wastewater systems, storm water systems and fire protection.

At this time, the project team is in a position to offer responses to many of the review comments provided below. We must acknowledge, however, that some of the review comments are requesting information that can only be provided after detailed architectural & engineering has been completed. We feel that in accordance with the intent of the published Site Plan Submission requirements these items are not required to be completed prior to achieving site plan approval but acknowledge that they will be required prior to receiving a building permit for the project. These items may be considered a condition of site plan approval in accordance with the published Site Plan Review criteria.

The Plug Power project team understands that the site plan submission and approval process is the initial step in obtaining full project approval for construction (building permit). Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit. Plug Power remains steadfast and looks forward to obtaining the subsequent approvals for this exciting project in the Town of Alabama, NY.

The project team has received and reviewed the comments and questions contained in the June 25, 2021 Memo and can offer the following applicable responses:

GENERAL

1. Location maps provided on the cover sheet are so small, they are not legible. Please provide legible maps.
 - *Noted: Please see revised cover sheet G1 with larger location maps.*
 2. Will there be any facility signage at the entrance or on the building? If so, please show on plans along with details such as size and color so that it can be reviewed by the Building Inspector for compliance.
 - *Compliant ground mounted signage is proposed as indicated on the "3D Perspective from Entrance" on G1. This is also now indicated on the revised Layout & Utility Plan, Drawing C2, for reference. Plug Power acknowledges that construction level details for the proposed signage will be required in order to obtain a building permit.*
 3. Please dimension the setbacks on site plan for each building
 - *Noted: The additional dimensioning will be indicated on the revised Site Layout & Utility Plan – Sheet C2.*
 4. Please dimension the parking lot stall, drive aisles, etc.
 - *Noted: The additional dimensioning will be indicated on the revised Site Layout & Utility Plan – Sheet C2.*
 5. Please indicate what processes are to be located within the Phase 2 compressor/liquefaction building as shown on Drawing C2.
 - *Phase 2 shall expand the compressor/liquefaction building to accommodate additional process capacity, increasing total production capacity from 45 mTPD to 75 mTPD. This equipment will perform the same processes as the Phase 1 building, shown on drawing C2. These processes include the drying, compression, and liquefaction of hydrogen gas using vendor-designed skids. The dryers will remove residual water vapor and oxygen from the incoming product stream, which will then be sent to the compression and liquefaction skids. The compression and liquefaction processes use cooling water and liquid nitrogen to condense the hydrogen gas into liquid hydrogen. The liquid hydrogen is then stored in the storage sphere(s) also shown on drawing C2. Liquid nitrogen vaporizes during this process; therefore, the re-liquefaction of the liquid nitrogen used in hydrogen liquefaction is also located in this building.*
 6. Site plan needs to show the number of floors and building height(s). The architectural plans show eave heights but not peak height of buildings. Please show the total heights of the buildings on the site plan/architectural plan.
 - *Noted: The additional information will be indicated on the revised Site Layout & Utility Plan – Sheet C2 and Preliminary Architectural Drawings, Drawings A1-A3, for requested information.*
 7. In general is it very difficult to follow the utility plans as there is no base stationing for the waterline, sanitary sewermain and stormsewer. Please provide profiles for all waterlines, sewer lines and storm sewers with a stationed baseline that shows all utility crossings and conflicts. Label the vertical separation on the profile sheet at each crossing. It is extremely difficult to determine where potential conflicts exist without profiles of the utilities. (Such as between the process waste line and the process/domestic waterline and all service laterals).
 - *In accordance with the intent of the published Site Plan Submission requirements these items are not required to be completed prior to achieving site plan approval but acknowledge that they will be required prior to receiving a building permit for the project. It is understood that the final detailed design and engineering & drawings for the on-site private utilities will be provided by Plug Power's project team upon submission of the project for building permit.*
- a. Include offsets and station numbers for all utilities and structures/fittings

- *Final detailed design and engineering & drawings for the on-site private utilities will be provided by Plug Power's project team upon submission of the project for building permit.*
- b. Please provide a minimum of 18-inch vertical separation between sewer lines and water lines.
- *Final detailed design and engineering & drawings for the on-site private utilities will be provided by Plug Power's project team upon submission of the project for building permit.*
8. The design engineer should place a stop sign/ stop bar combination at the Southeast Exit.
- *Noted: The stop sign and stop bar will be indicated on the revised Site Layout & Utility Plan – Sheet C2.*
9. Please indicate on the plans where the dumpster/trash disposal area is located on the plans.
- *Noted: Although limited solid waste is anticipated at the Facility, a dumpster/trash disposal area will be indicated on the revised Site Layout & Utility Plan – Sheet C2.*
10. Why is the site plan (Sheet C2) at a scale of 1"=60'? Is this of sufficient enough detail for a contractor to accurately construct the project with the tight spacing of underground utilities?
- *The 1"=60' scale was selected in order to show the entire site on one Project Drawing for Site Plan Approval purposes. It is understood that additional sheets may be required to provide additional detail under the Building Permit application process.*
11. Is there a plan for an emergency generator for the facility? If so, please indicate the location on the design plans.
- *There will be no diesel or natural gas generators on site. It is anticipated that Plug Power will provide their own Fuel Cells that will be installed in both the Electrolyzer and Compressor/Liquefaction buildings.*
12. How will the fire department gain access beyond the "gated access" if necessary?
- *A Knox Box will be installed in accordance with Building Code requirements. A note will be added to the revised Project Drawings.*

DRAINAGE & GRADING

1. Please provide a phased erosion and soil control plans since greater than 5 acres is planning on being disturbed.
 - *Noted: Erosion & Sediment Control Plans will be provided for the Phased Construction.*
2. Drainage areas do not end at property lines. It appears that there may be off-site area draining onto the site that is not accounted for (area 4S on the south and west). Base survey does not provide any information on adjacent wetland areas or adjacent topography. Where does this flow heading off-site go to? The design engineer shall take into account offsite drainage that may enter the site and revise the plans accordingly.
 - *Noted: Additional topographic information has been obtained for the STAMP site. As a result, the Drainage Maps will be revised to indicate off-site contributing areas. The drainage design will be modified accordingly and indicated on the Grading & Drainage Plan – Sheet C3 and the hydraulic analyses within the revised SWPPP/Design Report.*
3. The sum of areas shown on the existing conditions drainage area map do not match the sum of areas shown on the proposed conditions drainage area map. Why is there a difference? These should be consistent with each other and with the calculations.
 - *Noted: Any discrepancies will be corrected on the Drainage Maps and within the hydraulic analyses within the revised SWPPP/Design Report.*
4. The drainage area boundaries along the south and west property lines between areas 1S, 2S, 3S, and 4S change from predeveloped conditions to post developed conditions. How is this possible, especially when there is no grading work in these areas?

- *Noted: Any discrepancies will be corrected on the Drainage Maps and within the hydraulic analyses within the revised SWPPP/Design Report.*
5. A detailed, proposed conditions drainage area map will be required to fully review the proposed conditions HydroCAD model. This map will need to show the extents of the different gravel storage areas, each ditch (reach), and all other nodes shown on the routing diagram. This may need to be a full-size drawing to adequately show each drainage area, practice, and reach.
 - *Noted: The Proposed Conditions Drainage Map will be revised to indicate the required drainage areas, sub-catchments, ponds and reaches. The nomenclature will be established to be consistent with the hydraulic analyses routing diagram within the revised SWPPP/Design Report.*
 6. It appears that the gravel stormwater storage area includes many equipment pads and buildings. With stone depth being up to 4-ft deep, will this have a negative impact on the surrounding equipment pads? Do their foundations go to a depth greater than the bottom of stone? Typically, we try to drain water away from foundations, but this design seems to be purposely storing it near pads and buildings. Is this a wise approach? While we understand that Note 33 on Sheet C2 indicates that the equipment pads will be designed by others, the use of the stone depth used during the drainage design will affect that drainage design. Will the design of the pads even be possible given the stormwater approach? These storage areas (volume #1 and volume #9 for pond 21P) must be clearly shown on the plans with enough information to be constructed properly.
 - *The subgrade will be sloped at 0.5% away from the building to direct the flow to the perimeter perforated pipe and stone trench. The perforated pipe and stone trench will provide the required storage for the majority of the storm events. Only the 100-year storm will encroach within the stone around the outer portions of the equipment pads. The pad areas have been eliminated from the storage area of the surrounding stone. The pad designer will be provided with the drainage information. A cross-section of the gravel area, with elevations, will be provided within the revised Project Drawings.*
 7. Stormwater management practices should be labeled with the appropriate design 1, 10, 25, and 100-yr water surface elevations on the Grading and Drainage Plan, including the subsurface gravel detention area.
 - *Noted: The requested information will be added to the revised Grading & Drainage Plan – Sheet C3.*
 8. The design engineer shall provide cut/fill calculations.
 - *Noted: Although cut/fill calculations are not typically provided until Construction Drawings are submitted during the Building Permit application process, a rough cut/fill analysis will be included with the revised Project Drawings and revised SWPPP/Design Report submittal.*
 9. The SWPPP refers to documentation from OPRHP but we could not find any documentation that the project will result in "no impact" to archaeological resources. Please provide this documentation.
 - *Noted: This information will be provided to the Town of Alabama by GCEDC.*
 10. What is the purpose of the "Conservation Easement" along the north ditch? Typically, a drainage easement would be provided here to allow for future cleaning of the ditch if necessary. This would not be possible if it were in a conservation easement, would it? How would outfalls be maintained if they are in a conservation easement?
 - *Per the GCEDC, these areas are not to be considered "conservation easements" in the legal sense of the term. According to GCEDC these areas should be referred to as "Natural Resource Conservations Areas" and are intended to be more of a natural buffer to physical construction than anything else. This has been re-labeled on the revised plans and report.*
 11. We don't quite follow the Cpv calculations provided. Per the Stormwater Design Manual, a post-developed, 1-yr storm runoff volume is estimated and then converted to an average discharge

- rate over 24-hrs. 1-yr outlet controls are then designed to result in equal or less discharge from the site under proposed conditions. Please provide more information on the calculation provided.
- *The CPv Calculations and Drainage Design will be revised to indicate that the post-developed, 1-yr storm runoff volume from the developed site is discharged at a rate less than the average discharge rate for the estimated volume over 24 hours. The revisions will be indicated both on the revised Project Drawings and the within the revised SWPPP/Design Report.*
12. In the HydroCAD model, the existing conditions model should not route area 4S through reach 9R, but rather include the downstream portion of swale flow in the area 4S Tc calculation.
 - *Noted: The HydroCad model and Existing Conditions Drainage Map will be revised to include the downstream portion of swale flow as part of the area 4S Time of Concentration calculation.*
 13. If runoff from several areas goes to the same point of analysis, it is practical to use a link to show the cumulative peak flow from the various areas. However, if flows go offsite to different areas, these flows should be direct comparisons without using a link.
 - *Noted: The HydroCad model and Drainage Maps will be revised accordingly.*
 14. The bioretention surface area (filter area) must be labeled on the plans.
 - *Noted: The Project Drawings will be revised to include the required information.*
 15. The two (2) primary outlet pipes from the bioretention area are modeled as 15" diameter HDPE pipes but are shown on the plans as 12" diameter pipes. Please revise plans to be consistent with the calculations/model.
 - *Noted: The Project Drawings will be revised to indicate the 15" diameter pipes.*
 16. Please provide information on the expected seasonal high groundwater elevation. The bioretention may not function as anticipated if high groundwater elevations saturate the underdrain and drainage stone. What ground water elevation was determined based upon the Geotech report from the Glynn Group in March 2021?
 - *Based on the March, 2021 Geotechnical Report prepared by Glynn Group, a groundwater elevation of 656 was utilized. The low point of the bio-retention area underdrain is located at approximately 659.56. Reference information will be provided within the revised SWPPP/Design Report.*
 17. Please provide additional detail on the swales between stone storage and dry pond and stone storage and bioretention. A cross-section(s) should be provided for these swales and their slope and length should be labeled on the plans. How are these swales providing pretreatment? Will vegetated swale calculations be provided to demonstrate this per section 5.3.3 of the Design Manual?
 - *The swales leading to the vegetated dry detention area will be eliminated since only flows from the larger storm events will be directed to this area. The vegetated dry detention area will be expanded to incorporate the outlets to the area. A cross section(s) of the vegetated dry detention area will be provided in the revised Project Drawings.*
 - *The swales leading to the bio-retention area will be converted to vegetated sediment basins to serve as pre-treatment for the bio-retention area. They will be designed in accordance with section 6.4.3 "Pretreatment" of the NYSDEC Stormwater Management Design Manual. The modifications will be indicated on the revised Project Drawings. A cross section(s) will also be included. Updated hydraulic analyses will be included in the revised SWPPP/Design Report*
 18. Stormwater management practices appear to discharge to the invert of the north ditch. How will the stormwater management system work when this ditch is flowing? What are the tailwater effects on the proposed system?

- *An analysis of the contributing watershed to the ditch and the corresponding average flow depths within the ditch will be conducted. The flow depths will be utilized to establish fixed tailwater elevations at the various discharge points to the ditch under proposed conditions for the various storm events. The updated HydroCAD analyses will be included in the revised SWPPP/Design Report.*
19. Provide backup on the various event stormwater depths used in HydroCAD.
- *The rainfall depths for the various storm events were obtained from the Northeast Regional Climate Center (NRCC) and Natural Resources Conservation Service (NRCS) Extreme Precipitation in New York & New England Interactive Web Tool for Extreme Precipitation Analysis (www.precip.net) and are specific to the site. This information will be included in the revised SWPPP/Design Report.*
20. Please check/verify the proposed rim and inverts of structure #8 in the Storm Structure Table.
- *The inverts for the structure will be corrected on the revised Grading & Drainage Plan – Sheet C3 within the Project Drawings.*
21. Please check/verify that the HydroCAD routing diagram matches the structures on the plans. For example, the routing diagram labels pond 27P as CB#4, but it appears to be CB#13 on the plans. Please be consistent so we can follow the model without guessing.
- *Noted: The HydroCAD routing diagram will be revised to match the structures on the Grading & Drainage Plan. The Existing and Proposed Conditions Drainage Maps will also be revised to indicate the required drainage areas, sub-catchments, ponds and reaches. The nomenclature will be established to be consistent between the plans and the hydraulic analyses routing diagrams within the SWPPP/Design Report.*
22. Crosby Road cross-culvert labels the west invert of a 36" HDPE pipe but label the cross-pipe at a 42" SICPP. Is this pipe to be replaced/upsized? It appears that a label note may be cut-off. What about guiderails? Are lines shown existing or proposed?
- *The Crosby Road work scope is being bid by the GCEDC. The design is still being developed and will be updated accordingly prior to bid. This work will consist of replacing the existing 42-inch HDPE culvert with a new 42-inch SICPP culvert. No guiderails are proposed as part of this work.*
23. Please turn off hatching for the road as the existing contours are not visible. Also please look at the grading and drainage plan as existing contours on Crosby Road are also not visible.
- *Noted: The Project Drawings will be revised to help clarify the existing contours.*

WATER & SANITARY SEWER PLANS

1. The design engineer must call out all waterline fittings (degree, tees, etc) and valves on the design plans.
 - *Noted: It is understood that this information is not required to be completed prior to site plan approval but will be required prior to issuance of a building permit.*
2. Why are sanitary manholes only called out for the process waste sanitary sewer and not the domestic sanitary sewer? Are you treating the 6-inch domestic sanitary sewermain as a long service lateral?
 - *The 6" domestic sanitary is being treated as a service lateral. Cleanouts will be provided, as necessary.*
3. The design engineer needs to explain how the underground electric for the ring road lighting, the fence, fire protection loop, and domestic sanitary sewer service will be located within the same 4-5' wide corridor along the south side of the site plan without having any conflicts.
 - *The fence along the south side of the development will be relocated to provide additional space for utility installation. The updated fence location will be indicated on the revised*

Project Drawings.

4. Please identify the need for the PVC/Cast Iron Trap sanitary detail on Sheet C7. We do not see where it is called out on Sheet C2.
 - *It is anticipated that a vent/trap/cleanout will be required for the O & M building for the domestic service lateral. The location and information will be added to the revised Project Drawings.*
5. The design engineer must call out all rim, inlet, and outlet elevations of sanitary and process waste sewers on the design plans in addition to the lengths and slopes of the sewer main between manholes on Sheet C2.
 - *The structure rim and invert information, as well as the pipe lengths and slopes, is provided on Sheet C2 for the Process Waste Sewer. Additional information will be provided on the revised Project Drawings for the domestic sewer lateral.*
6. Please indicate areas of full depth select backfill related to pavement crossings of all underground utilities on the plans.
 - *Select Fill is indicated on the Project Drawings for all underground utility crossings of paved areas. The Project Drawings will be revised to better clarify those areas.*
7. Sample points must be shown every 1,000 feet on the proposed watermain to be installed.
 - *A sample point will be indicated on the revised Project Drawings at the western terminus of the proposed water service.*
8. The design engineer should consult with the Town of Alabama's Fire Department to determine the type of connection fittings for the fire hydrants (Storz or standard thread).
 - *Town of Alabama Fire Department does not have the Storz-type fittings on the municipal hydrants in the Town; they are all standard thread (NPT).*
9. The distance between the chain link fence and edge of pavement on the South side of the site appears to be approximately 3 feet. It also appears there is not enough room for snow storage which could likely result in the fire hydrants located next to the roadway being buried in snow. The design engineer must review the placement of the fire hydrants in relation to the fenceline and snow storage area.
 - *The fence along the south side of the development will be relocated to provide additional space for utility installation and snow storage. The updated fence location will be indicated on the revised Project Drawings.*
10. We are requesting the design engineer to move the proposed hotbox as close to the right of way as practicable.
 - *Noted: The hotbox will be relocated on the revised Project Drawings to best accommodate this request.*
11. There is a conflict on Drawing C2 where the Process/Domestic waterline is called out as both a 8-inch line and a 10-inch line at various locations. The design engineer shall revise the plans accordingly.
 - *Noted: Any discrepancies will be corrected on the revised Project Drawings. Please note that the Process line is proposed to be 10-inch while the Fire Protection line is proposed to be 8-inch.*
12. Why is the process/domestic waterline extended for a length of approximately 510' feet past the service connection into the northeast corner of the Phase 2 Compressor building? This seems like a lot of unnecessary piping that will contain stagnant water with no further service connections to a building.
 - *The Process waterline is extended to the western limits of the site to accommodate potential future expansion.*

13. If the 510' of watermain is to remain, the design engineer must add a 2-inch permanent blow off and/or an autoflusher unit at the west end of the watermain.
 - *Noted: The Project Drawings will be revised to include a permanent blowoff at the west end of the waterline.*
14. Please verify that there is a minimum of 10 feet of horizontal separation between the process waste line and the domestic/process waterline. Please dimension on the design plans.
 - *Noted: The Project Drawings will be revised to include the dimension between the referenced utilities to verify the minimum 10 feet of horizontal separation.*
15. Are any of the proposed buildings sprinkled such as the O&M Building? Please indicate where the connections to the building are connected to the fire protection loop.
 - *It is anticipated that the Electrolyzer and Compressor/Liquefaction Buildings will have a fire protection system installed IAW NFPA and BCNYS. The O&M Building may also have a fire protection system installed. Final connections will be coordinated with the final interior layout of the applicable buildings. Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
16. The applicant is required to provide to our office a separate backflow prevention application (x4 copies) for the hot box including plans, specifications, RPZ information, water meter information, signed DOH forms, review fee, and engineering report. We will facilitate the signature of the DOH forms with the Town of Alabama and submit them to the Genesee County Health Department for approval. This item is not required to be completed prior to site plan approval but will be required prior to issuance of a building permit.
 - *Noted: The final coordination of the applicable application will be coordinated with GCEDC, Town of Batavia, and Genesee County Health Department as required and upon Final architectural & engineering drawings and details provided by Plug Power's project team.*
17. The "Standard Connection to existing watermain" detail on Sheet C6 is not acceptable with the 90 degree bend. Please use a different detail. Furthermore, where is this detail applicable to the plans?
 - *Noted: The final connection detail(s) will be coordinated with GCEDC upon Final architectural & engineering drawings and details provided by Plug Power's project team.*
18. The waterline along Crosby is shown on the existing conditions plan. This should be removed from this drawing if it is not existing.
 - *The watermain along Crosby road is included in the GCEDC scope of work to provide water to the site. This layer will be turned off from the existing conditions plan.*
19. The 10-inch connection to the proposed 12-inch watermain should be coordinated with GCEDC so that a tapping sleeve and valve can be avoided. A 12"x12"x10" tee along with a 3-way valve assembly would be a better connection for the site.
 - *The water connection will be coordinated with GCEDC. If Plug Power has flow rates that support a maximum size of 10" WS, then a 12x12x10 tee can be added to GCEDC plans for Crosby Road with a 10" water service valve for Plug. We do NOT agree with having a valve tree at a service, which would then require 3 valves at every service in STAMP adding multiple unnecessary valves and complicating the water system.*
20. Please provide details on the proposed flume/meter pit. There is no profile or information on the structure on the detail sheets.
 - *Meter and flume will not be installed for process waste now that the site produces zero liquid waste.*
21. The design engineer needs to explain why the sanitary process water will discharge the site at a depth of approximately 17 feet +/- deep by the time it reaches Crosby Road. Will the proposed sanitary sewer system by GCDEC be able to accommodate this discharge depth?

- *The proposed invert elevation of 17 feet deep for the process wastewater at Crosby Road is to facilitate any future expansions to the facility. The GCEDC will work closely with Plug Power to ensure that the process water solution for Plug Power will accommodate the 17 feet of depth. These design plans are currently being developed. We are making the assumption that your sentence addressing the sanitary sewer was in reference to the process water. Please note that Plug Power has decided to design the water purification system, so that there is no process waste water discharge for the facility.*
- 22. Please indicate the location of the on site holding tank for the domestic waste. This temporary facility must be incorporated into the design plans. Details on this tank structure and the frequency by which it will be pumped out must be outlined in the engineering report. What site modifications for vacuum truck access must be made to the site plan to accommodate this storage tank? What size will this tank be based upon given the 500 gpd demand outlined in the engineering report?
 - *The location of the holding tank will be located at the GCEDC onsite Utility Parcel. Details on the tank structure, frequency of pumping and size are currently being developed. The GCEDC will most likely contract with the Village of Corfu for pumping and hauling. Once plans are developed, they will be submitted for review.*
- 23. Please indicate the location of the offsite discharge location for the process waste. This location must be incorporated into the design plans.
 - *The process waste will be collected and discharged to a GCEDC facility. The process water will be sent to the tank/wet well at the GCEDC Utility Parcel. The GCEDC pump station will be constructed to pump the process water along the FM route, through the refuge and Town of Shelby and eventually discharge to Oak Orchard Creek, north of the Hamlet of Shelby. Please note that Plug Power has decided to design the water purification system, so that there is no process waste water discharge for the facility.*

ENGINEERING REPORT

1. Provide the following information related to the proposed waterline for the facility in the design report. This would include the following:
 - a. Domestic water demand (include Calculations)
 - *The site's annual water demand is expected to be 89,200,000 gal/ yr (53,500,000 gal/ yr Phase 1 only), or an average of about 244,000 gal/ day (147,000 gal/ day Phase 1 only).*
 - *Water use calculation: 84,000,000 gal/ yr for H2 Production + 5,000,000 gal/ yr for process cooling + 183,000 gal/ yr for domestic uses = 89,200,000 gal/ yr*
 - *The maximum summer daily demand will peak at 807,000 gal/day (484,000 gal/ day Phase 1 only) based on the facilities cooling water needs. Wintertime demand is expected to be 231,000 gal/ day (139,000 gal/ day Phase 1 only).*
 - *The maximum demand for the domestic system is expected to be 1,056 gpm (633 gpm Phase 1 only) during the hottest hours of the year when the dry bulb temperature is 95°F or above.*
 - b. Breakdown of the 280,000 gpd demand outlined in the engineering report
 - i. What is the demand per phase?
 - *The site's annual water demand is expected to be 89,200,000 gal/ yr (53,500,000 gal/ yr Phase 1 only), or an average of about 244,000 gal/ day (147,000 gal/ day Phase 1 only).*
 - *Annual water use: 89,200,000 gal/ yr Phase 1 & Phase 2 (53,500,000 gal/ yr Phase 1)*
 - *Maximum daily use: 807,000 gal/day Phase 1 & Phase 2 (484,000 gal/ day Phase 1)*
 - *Maximum instantaneous flow: 1,056 gpm Phase 1 & Phase 2 (634 gpm Phase 1)*
 - c. Static waterline pressure (at the waterline at the right-of-way.) See Comment #2 below.
 - *Refer to response 2 below; static pressure on Crosby Road will be a minimum of 98 psi to a maximum of 152 psi.*

- d. Anticipated pressure at various locations of the facility (include head loss calculations through the water service and backflow preventer/RPZ and meter)
- *The final on-site waterline design and engineering will be based on the available design flow and pressure data provided by GCEDC for the new municipal watermain. Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
- e. The design engineer must comment on the need to provide a sprinkler system for the facility.
- *The overall project site will have an onsite Fire Protection loop with hydrants provided at 500 feet along the proposed perimeter loop road. Both the Electrolyzer Building and the Compressor/Liquefaction Building will have an internal fire protection system IAW NFPA and FCNYS. The smaller Operations & Maintenance Building will not require an internal fire protection system.*
- f. Provide fire flow calculations for the facility and available fireflow at the farthest fire hydrant from the connection point.
- *The final fire protection design and engineering will be based on the available design flow and pressure data provided by GCEDC for the new municipal watermain. Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
- g. What fire flow demand is required for the hydrants on the perimeter of the building?
- *The final fire protection design and engineering will be based on the available design flow and pressure data provided by GCEDC for the new municipal watermain. Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
- h. Please provide the pipe reports, junction reports and modeling scenarios from Water CAD.
- *Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
- i. Please evaluate the water system based upon C=100.
- *Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
2. The engineering report indicates a pressure of 98 psi and fireflow of 1,698 gpm (is this at 20 psi residual?). What is this information based upon? Was it provided by GCEDC?
- *The static pressure and fire flow were provided by the water model of the Town of Alabama's Engineering Consultant designing the municipal water system. There are two water supply sources that were utilized in the water model: The Village of Oakfield with an HGL of 910, and Town of Pembroke with an HGL of 1031. The static pressure of 98 psi is from the "Oakfield" supply, as the "Pembroke" supply would have a static pressure of approximately 152 psi. The fire flow capacity of 1,698 gpm @ 26 psi residual is from the "Pembroke" supply, as the "Oakfield" supply would have a fire flow capacity of 2,616 gpm @ 20 psi. As the GCEDC has not yet determined which supply source will be utilized, the lower static and fire flow values were utilized as the worst-case scenario.*
3. Provide the following information related to the proposed sanitary sewer system for the facility in the design report. This would include the following:
- a. Basis for the 70,000 gpd process demand outlined in the engineering report.
- *Plug Power has decided to design the water purification system, so that there is no process waste water discharge for the facility.*
- b. Basis for the 500 gpd domestic sanitary sewer demand
- *This value is based on 25 gal/day x 20 on-site employees = 500 gpd.*

- c. Sizing calculations for the meter and flume
 - *Meter and flume will not be installed for process waste now that the site produces zero liquid waste.*
- d. Sizing calculations for the all sanitary sewer mains and laterals.
 - *Final architectural & engineering drawings and details will be provided by Plug Power's project team upon submission of the project for building permit.*
- 4. Further discussion in the engineering report is needed as it relates to the timing of the construction of the temporary sanitary sewer facilities proposed by GCEDC, approvals of such facilities by the necessary regulatory agencies, and the construction schedule for the Plug Power project.
 - *The approximate schedule for construction of the temporary sanitary sewer facilities is as follows:*
 - *Design: July-August 2021*
 - *Bidding: September 2021*
 - *Construction: November 2021-July 2022*
 - *All facilities will be constructed and ready to accept sanitary and process water for Plug Power.*
- 5. Further discussion in the engineering report is needed as it relates to the timing of the construction of the 12-inch watermain proposed by GCEDC and the construction schedule for the Plug Power project.
 - *The approximate schedule for construction of the 12-inch watermain is as follows:*
 - *Design: July-August 2021*
 - *Bidding: September 2021*
 - *Construction: November 2021-July 2022*
 - *The water main will be constructed and ready to serve Plug Power prior to completion of the Plug Power project.*

COMMENTS FROM THE PUBLIC FROM THE MEETING HELD ON JUNE 21, 2021

- 1. What is the temperature of the discharge process water when it leaves the site?
 - *Plug Power has decided to design the water purification system, so that there is no process waste water discharge for the facility.*
- 2. What is the amount of process water needed to produce to hydrogen? Ex. 1,000 gallons of water will produce x gallons/pounds of hydrogen?
 - *Plug Power will be preparing additional information regarding the process to the Town of Alabama.*

Respectfully Submitted,
Scheid Architectural, PLLC



James B. Gannon, AIA, NCARB
Principal

CC: Mr. Bill McGorray – Town of Alabama Planning Board Chair
Mr. Brenor Brophy – Plug Power
Mr. Mark Masse – Genesee County Economic Development Center
Mr. Ryan Pierson – ATSI