

STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

**GRE GACRUX LLC petition for a declaratory ruling for the proposed construction, maintenance and operation of a 16.78-megawatt AC solar photovoltaic electric generating facility in Waterford, Connecticut. Reopening of this petition based on changed conditions.**

**Petition No. 1347A**

**June 18, 2020**

**PRE-FILED TESTIMONY OF DONALD J. DANILA**

**Q1. Please state your name for the record.**

A1. My name is Donald Danila. I am a retired fisheries biologist and I spent much of my career out on the Niantic River or working with issues associated with the environment of the Niantic River and Bay.

**Q2. What is your involvement with this project?**

A2. I was the person who first notified Save the River-Save the Hills, Inc. ("STR-STH") about the Waterford solar energy project. After submitting a detailed personal letter to the Council on August 20, 2018 regarding this project I then agreed to help this group (I have been a STR-STH member for years) to assess the plans and reports submitted by petitioner GRE GACRUX LLC ("GRE") in connection with GRE's first attempt to get this project approved by the Council. I reviewed the materials submitted regarding environmental assessments and impacts on the local ecosystem, which supports wildlife and fish populations. I submitted my opinions to the Council along with STR-STH's other concerns. When GRE asked the Council to re-open its petition, I again provided a review of the environmental/wildlife aspects of the revised project. I have continued to review GRE's submissions in this petition and to offer my opinion with respect to the inadequacy of GRE's environmental assessments and to how GRE's plans will impact the health of the Niantic River and its watershed. That review led to my submission of this testimony.

**Q3. What degrees or professional licenses do you hold?**

A3. I earned a B.S. in Biological Sciences (concentration in Ecology and Systematics) from Cornell University in 1969 and a Master's Degree in Biology from Rutgers University in 1978. My CV is attached as Exhibit A.

**Q4. What professional affiliations do you have?**

A4. I have been a member of American Fisheries Society since 1967 and was on the board of directors for the Southern New England Chapter of AFS for more than 20 years, receiving the Chapter's Distinguished Service Award in January 2018. Since 1989, I represented the Chapter as a member of the Fisheries Advisory Council to the DEEP and its predecessor agency. I have served on the Niantic River Watershed Committee for 10 years, been on the East Lyme Commission for the Conservation of Natural Resources for five years and also served on the board of directors of the Friends of Oswegatchie Hills Nature Preserve since 2013. I represent the latter organization on the Nitrogen Work Group, a body formed as a result of a condition of the National Pollutant Discharge Elimination System (NPDES) Permit for Millstone Power Station, which has studied the amounts and effects of the nutrient nitrogen in the Niantic River Estuary and its watershed.

**Q5. Please briefly describe your relevant experience.**

A5. I was a research biologist for my entire career, always working on issues concerning fisheries and marine ecology, mostly with respect to electrical energy developments. I spent 30 years working as a scientist at the Environmental Laboratory at Millstone Power Station, first for Northeast Utilities and then for Dominion Energy. At Millstone, I studied the Niantic River for the power plant's adherence to its regulatory obligations under a NPDES permit. I also formerly worked throughout the Northeast Utilities and Dominion systems of power plants in New England, including studies related to potential environmental effects of

hydroelectric, fossil-fuel and nuclear generated electricity. Following my retirement from Millstone, I worked for five years as a consultant with ASA Analysis and Communication, Inc., dealing with NPDES permit requirements associated with electrical generating stations and a petrochemical facility. I spent the majority of my career studying fishes and macroinvertebrates to determine effects of proposed or operating electrical generating stations and petrochemical plant operations on aquatic organisms; power plant thermal plumes and effects of temperature on aquatic organisms; the identification, ecology, movements and migratory behavior of fishes; and abundance and distribution of fishes and macroinvertebrates. I conducted statistical analyses of biological data using SAS and other computer-based software, wrote technical reports related to regulatory and permitting issues associated with CT DEEP, the U.S. Environmental Protection Agency, the U.S. Nuclear Regulatory Agency, and the Federal Energy Regulatory Commission, published scientific papers, made presentations at scientific meetings, and provided expert testimony in civil court and DEEP NPDES Permit proceedings for Millstone Power Station.

**Q6. What is the purpose of your testimony?**

A6. This testimony described my findings and opinions with respect to GRE's submissions to the Council.

**Q7. Please summarize your findings and opinion.**

A7. Generally, I found that GRE's submissions lacked critical information and made unfounded conclusions because its consultants neglected to conduct detailed on-site surveys for wildlife, particularly aquatic organisms, and ignored the proximity of the site to tributaries to the Niantic River. Overall, GRE and its consultants simply did not take into consideration the environmental sensitivity of the site and the impact its project will have on the Niantic River watershed. I do not see how the Council can make an assessment of the project's impact where

the developer has so clearly failed to provide it with the tools to do so, and I do not understand why GRE has failed to conduct the studies that the Council, relying on DEEP, asked it to provide back in 2018.

**Q8. What is your most significant finding?**

A8. My most significant finding is that GRE and its consultants have failed to provide information that would permit the Council to determine that the project will not have significant adverse environmental effects. GRE's submissions did not address at all the risks of adverse impacts on the aquatic life present in Oil Mill Brook and Stony Brook, and indeed did not even bother to investigate the current conditions of those brooks in its work. Important components of the local environment and their biota (e.g., aquatic species and water quality parameters of the streams that will be impacted) were either not discussed or summarily dismissed by GRE as not an issue. Some of the environmental studies submitted by GRE were cursory and lacked complete data. GRE's failure to address the biota and environment of the two streams bracketing the site and issues potentially occurring downstream in the Niantic River Estuary is a glaring omission in light of the environmentally sensitive nature of this site, the Council's denial of the earlier petition, and the information presented by STR-STH in the underlying proceeding and in this proceeding. In my opinion, GRE has simply not presented any sound basis for its claim that its project will cause no significant environmental effects, and in fact it is very likely that its project will result in thermal impacts and erosion and sedimentation in the brooks and tributaries that lead directly to the Niantic River and other impacts to water quality.

**Q9. What is that opinion based on?**

A9. My opinion is based on my review of GRE's submissions, my review of Steve Trinkaus's critiques of the stormwater management plan, my 40 years of experience as a

fisheries biologist, including 30 years working on the Niantic River and in its watershed, my extensive experience submitting data and information to state and federal agencies in connection with permitting proceedings, my experience working to protect the Niantic River watershed in connection with local environmental organizations, and my experience studying the impacts of failed stormwater management design at the Antares solar project in East Lyme, Connecticut. It's also based on my experience with the first iteration of this project, in the underlying petition proceeding that was denied by the Council.

**Q10. What was your experience with the underlying petition?**

A10. As I stated above, I joined STR-STH's efforts to conduct a review of GRE's submissions. During that review, I was dismayed to find that GRE had only completed brief on-site surveys of terrestrial organisms, no studies of the waters receiving stormwater effluent, and had totally ignored the nature of the project site and its significance to the Niantic River watershed. The Council denied the underlying petition for very specific reasons, including DEEP concerns over the lack of aquatic species surveys and its lack of detailed wildlife surveys. While GRE provided additional materials in its motion to reopen, it has only partially complied by having its consultants perform additional onsite terrestrial wildlife studies. The material submitted was again deficient in failing to address the biota and environment of the tributaries. It also in many cases glossed over or ignored environmental effects of the project even in the wildlife surveys that were conducted.

**Q11. How does the new petition compare to the old?**

A11. It is unfortunately not much of an improvement over the original with respect to wildlife. In its first letter about the project, dated August 24, 2018 (attached as Exhibit B), DEEP went into detail regarding watershed issues associated with the underlying petition and stated that:

[T]he petition lacks recognition of the current hydrologic connections of this proposed development site to the shared watersheds of Stony Brook and Oil Mill Brook, or to their individual water quality assessments. This watershed contains a high water quality stream system as supported by over ten years of water quality data from DEEP, the U.S. Geological Survey, the local Niantic River Watershed Committee, as well as stream macroinvertebrate data and recent cold and cool water fisheries population and habitat evaluations. The Petition documents do not appear to sufficiently evaluate the proposed stormwater management systems for potential thermal and sediment impacts to downstream aquatic resources or describe any measures to mitigate any such potential adverse water quality impacts.

That letter went on to note information about assessments of the Niantic River (a DEEP priority coastal embayment) and Oil Mill and Stony Brooks, both of which are classified as Class A waters providing fish and wildlife habitat. The letter detailed the current impairment status of the Niantic River and concerns that the proposed project will worsen the river's water quality condition. The need for a complete biological study that was strongly pointed out by DEEP was then directed to GRE by the Council in its denial without prejudice on October 26, 2018. Given the statements made by that DEEP analyst with respect to a lack of information and analysis of water quality and aquatic life (both macroinvertebrates and fishes), which statements were clearly one of the reasons the Council denied the original petition, it is unfathomable to me that GRE did not conduct studies of the two streams and their biota as well as an evaluation of potential water quality impacts to both streams and the Niantic River – but it did not, and those same serious deficiencies are still present in GRE's new petition.

Other deficiencies also remain. That same letter also noted:

The wildlife assessment was generally based on habitat with a focus on vernal pools and not on detailed surveys which may have identified state listed plants, presence/absence of bats or other animals, and state listed insects in the area. Breeding bird surveys were not conducted, although avian species were observed when biologists were at the site. Given the lack of available information, it is recommended that a comprehensive wildlife survey be conducted at the site.

GRE did not do all of what DEEP asked for with this new petition. It has not conducted those detailed comprehensive surveys. For example, although VHB, GRE's new environmental

consultant, received correspondence from the U.S. Fish and Wildlife Service indicating that the northern long-eared bat, a federally listed threatened species, may occur on the project site and/or may be affected by the project, VHB did not conduct bat surveys “because NDDB did not identify this species as potentially occurring on the site.” (Petition, Ex. I, Oct. 2, 2019 letter.) GRE’s refusal to survey for bats in light of the August 2018 DEEP letter and when it is aware that a federally listed bat species may be on site is inexplicable. I note that the wildlife studies associated with Petition Nos. 1310 and 1310A (Quinebaug Solar, LLC in Brooklyn/Canterbury) included a bat survey as a result of the state NDDB listing of the northern long-eared bat for that site area. That species was ultimately not found during the Quinebaug bat survey, but the little brown bat and the tri-colored bat, both of which are state-listed endangered species, were found on the site and their presence required changes to the construction plans. The Council has no way of knowing whether state-listed bats reside on this site, because VHB simply did not do the bat surveys. Without that data, how can GRE say that its project will not adversely affect wildlife present on the site? How can the Council determine that?

The site survey that VHB did conduct concluded that there was indeed suitable habitat present for each of the state-listed reptile and plant species called out by the NDDB. (*Id.*) The VHB biologists’ observations also led them to conclude that several other state-listed species may be on the site, including the endangered golden-winged warbler and the endangered sharp-shinned hawk, and the special concern species brown thrasher, whip-poor-will, northern saw-whet owl and broad-winged hawk. Although the site has the potential to be home to each of those state-listed species, GRE’s submission did not contain any discussion of mitigation or adjustments to construction or design to account for and protect these species, with the exception of the eastern ribbon snake, discussed more below. Nor did VHB conduct a migratory

or winter bird survey. The first environmental consultant, Davison, commented with respect to the tree clearing (at the time 90 acres, now proposed to be 75 acres):

The resulting habitat loss will render the site largely uninhabitable for forest-dwelling birds. Beyond the areas converted from forest to solar field, forest within approximately 300-feet of the proposed clearing limits will be diminished with respect to supporting forest-dwelling birds because of the impacts associated with the edge affect. Additionally, the overall 750-acre forest block will be fragmented, and the habitat value diminished. This is exacerbated by the fact that the site lies roughly within the center of the overall 750-acre forest block, which will have a particular affect on the portions of the forest block that lie to the west (west of the site towards I-95, north to Oil Mill Road) as this area will be fragmented into a small forest patch less than 100 acres.

(Petition, Ex. H.) That is a strong statement by GRE's own consultant indicating likely environmental effects to the birds believed to be breeding on-site and is further indication of the need for stronger environmental studies and assessments and protection of environmentally sensitive parcels such as this one in Waterford.

Most remarkably, however, the new submission contains absolutely no surveys or studies of the two tributaries, no evaluation of the possible impacts to downstream aquatic resources, and no discussion about mitigation of those possible impacts – in other words, GRE just did not bother to do the work DEEP and the Council asked for. In spite of that fact, GRE's petition narrative states: "Based on comments from DEEP in the August 20, 2018 letter, additional studies have been completed to satisfy the request and confirm that there will be no impact to any sensitive species." (Petition at 35.) That statement is wholly unsupported because (1) GRE did not actually satisfy that request with respect to aquatic species or bats; and (2) with only one exception, GRE did not actually analyze the impact on its project of the potential presence of the three state-listed plants, four state-listed reptiles or six state-listed bird species. Nor did GRE provide much analysis of how this project will affect amphibians on the site; no analysis was performed indicating how the loss of woodlands and the development of this

project would affect the salamanders, frogs, and toads using the wetland pools for breeding. These species require more than just wetland pools for their habitat as many of these species reside for most of the year in upland areas.

**Q12. What about the final NDDB determination GRE received in February 2020?**

A12. Based on my review of the submissions and GRE's interrogatory questions and responses, it appears to me that GRE is trying to use that NDDB "final determination" letter as a shield to try to protect itself from any inquiries about its refusal to address aquatic species. GRE seems to be arguing that because it got this second DEEP letter from the Wildlife Division, it had no obligation to assess potential impact of its project on aquatic species, and no obligation to seek out review by the Fisheries Division. I do not believe that position is at all reasonable given the history of this petition and the Council's reasons for denying it in the first place. As set out above, DEEP was very, very clear in its initial review of this project – GRE failed to do its job with respect to aquatic species and evaluation of the possible impact of its stormwater management design on the downstream aquatic resources. GRE has not corrected that deficiency, and its reliance on the NDDB is just not relevant to that issue.

First, I note that based on the August 2018 letter from DEEP, this project site did not fall into an existing NDDB area. The analyst opined that it was "likely that this location has never been surveyed." An NDDB Determination was subsequently made because in 2018, a state-listed eastern ribbon snake was fortuitously sighted near a site wetland by Davison Environmental. This example illustrates that a lack of inclusion of aquatic species in a NDDB Determination is not evidence that no such species exists on the site. In fact, the February 2020 NDDB Determination also clearly noted "consultations with the NDDB *should not be substituted for on-site surveys required for environmental assessments.*" Presence or absence can only be determined by performing more complete systematic sampling of the communities of interest.

An illustrative local example of the adequacy of an NDDB Determination is the environmental work done in conjunction with the proposed Routes 82/85/11 transportation corridor improvements in the Towns of Salem, Montville, and East Lyme, all located just to the west of the Waterford site. Although no threatened or endangered fishes or other aquatic species were reported for this project study in the DEP (predecessor agency to DEEP) NDDB Determination, by the DEP Fisheries Division, or the U.S. Fish and Wildlife Service, biological surveys were nevertheless conducted to verify available information on aquatic species. (USFHA and CT DOT 2007.) These surveys revealed the presence of two state-listed stream invertebrates, the Eastern pearlshell mussel (*Margaritifera argaritifera*) and the tiger spiketail dragonfly (*Cordulegaster erronea*). (USFHA and CT DOT 2007.) Thus, sampling proved to be a better indicator of the actual presence of species of concern rather than in paperwork determinations, even ones completed by experts. That is often the case. My example above of the bat surveys conducted at the Quinebaug solar site is another example – had the developer not conducted a bat survey, no one would have known that the site was home to state-listed endangered bat species, and the construction of that site could have significantly harmed those populations. These are just a few examples of the necessity for complete on-site wildlife surveys rather than relying solely on presumptions. The absence of evidence is not evidence of absence.

I also note that the environmental analyst who prepared the February 2020 NDDB memorandum was identified as being a Wildlife Biologist. DEEP has both a Wildlife Division and a Fisheries Division as part of its Natural Resources Bureau. The scope and responsibilities of these two divisions may be inferred by their names and by a perusal of the information available about the responsibilities of each Division, which may be found on the DEEP website (<https://portal.ct.gov/DEEP/About/Main/Natural-Resources>). I believe the omission of references to aquatic species is explained by the fact that the DEEP review was not conducted

by a member of the Fisheries Division, and I further believe that had that review been conducted, other conclusions may have been made with respect to aquatic resources. Both streams contain wild trout and the presence of other species, such as mussels, is unknown. GRE should not be permitted to use the absence of a very specific directive by DEEP to undertake studies of aquatic studies as a free pass to ignore the potential impact on aquatic resources, given the location and environmentally sensitive nature of the Site and the content of DEEP's August 2018 letter.

**Q13. Why do you consider this site to be “environmentally sensitive”?**

A13. The project site is located in the Niantic River watershed. It is just 4,000 feet from the Niantic River Estuary and sits between two tributaries to the river, Oil Mill Brook and Stony Brook. (See Exhibits C and D for site maps with waterways marked.) There are also unnamed intermittent streams on and around the site, some of which feed directly into Stony Brook and one of which runs parallel to Oil Mill Brook and feeds directly into the Niantic River. DEEP has listed the Niantic River Estuary as “impaired” due to water quality issues for at least the past 15 years. That rating is due to pollution that has caused the water quality of the river to slowly deteriorate. I observed this myself over my 30 years working at Millstone's Environmental Laboratory and as a member of both the Niantic River Watershed Committee and the Nitrogen Work Group. One of the biggest sources of pollution in the river is runoff. That runoff pollution comes not just directly into the Niantic River itself, but into its watershed, including tributaries like Oil Mill Brook and Stony Brook, and the intermittent streams that seasonally also contribute to the watershed. Runoff pollutes the river by discharging nutrients, particularly nitrogen, and by discharging silt. I agree wholeheartedly with the statements provided by Mr. Trinkaus in his testimony regarding the likelihood that this development will result in more nutrients and other pollutants being discharged due to less than adequate stormwater controls. Those discharges

would negatively impact the biota and aquatic species of the tributaries and ultimately of the Niantic River. The site's location between the tributaries and in such proximity to the Niantic River makes it environmentally significant and environmentally sensitive, in that any development on this site must be carefully reviewed and planned to avoid adverse effects to the watershed. Because this is a heavily sloped, forested site, clear cutting 75 acres on this forested site only to replace it with impervious solar panels and barely-established grass cover will compact the soils, change the drainage patterns on the site, and cause more runoff from the site that will make its way into the estuary. DEEP's August 2018 letter contains a succinct summary of these issues and of DEEP's efforts to protect the Niantic River estuary, which it describes as "a DEEP propriety coastal embayment for watershed restoration action planning by 2020."

**Q14. What impact will increased runoff have?**

A14. Both Oil Mill Brook and Stony Brook support trout populations. GRE's own wildlife consultant acknowledged that fact, and further wrote that "Brook trout are an indicator of high water quality, requiring cold well-oxygenated waters, with temperatures not exceeding the upper 60s Fahrenheit." (Appendix H at 9.) DEEP echoed that sentiment in its August 2018 letter, noting that these brooks are "two of the three main freshwater tributaries that feed into the Niantic River estuary and are classified as Class A waters which have the potential to meet the criteria for drinking water as well as provide fish and wildlife habitat." The stormwater runoff from the site will negatively impact the high water quality of the two trout-supporting tributaries to the Niantic River in several ways.

One problem for a trout stream is any silting that might occur. Spawning trout need clean gravel sediments in which to deposit their eggs on the bottom of a stream. At the Antares solar farm in East Lyme, stormwater-induced erosion caused considerable sediments to be discharged into receiving streams (an un-named stream draining the site, thence into Cranberry

Meadow Brook, and finally into Latimer Brook), much of which ultimately ended up in the Niantic River Estuary. GRE's project site in Waterford is three times the size of its Antares site, and is closer to the Niantic River. Any amount of sediment discharged into the two trout streams or their tributaries within or below the project site will be devastating to the trout population. Increased sedimentation would also have negative effects on the eelgrass when it reaches the estuary. Eelgrass is an important keystone species, providing habitat for many fishes and invertebrates, including the bay scallop. Juvenile bay scallops are currently being seeded into the Niantic River in efforts to restore a once-prominent fishery, and this species is of important recreational and economic interest to the Towns of Waterford and East Lyme. Increased sedimentation kills eelgrass, therefore destroying the efforts to rebuild the shellfish population and related ecology.

Another issue with increased stormwater runoff is the warming of the water in the streams. Although GRE has claimed that the runoff will cool off by running along vegetated ground before reaching the tributaries and wetlands, the fact is that water will sit in the stormwater basins and will warm up as it sits there, so that when the ground water levels rise, the warmer water will spill out. Because the area will no longer be forested, the ground will not be cool, and it is likely that the storm water that reaches the tributaries will raise their temperature. I studied the water temperature of the stream tributary to Cranberry Meadow Brook that receives stormwater effluent from the Antares solar project in East Lyme. Once discharging cooler water into Cranberry Meadow Brook (a good outcome for a trout stream), I discovered that after the Antares project was completed, a consistent one-degree temperature increase occurred in that stream compared to mainstem Cranberry Meadow Brook. Rather than being a source of cooler water, the un-named tributary now was introducing warmer water into the mainstem brook. Cold-water trout habitat is fragile, and adding warmer water to a stream

supporting both brook trout and brown trout would adversely affect the ability of these trouts to inhabit these streams. Again, the proposed site in Waterford is three times larger, so there will be a much larger volume of runoff affecting the receiving streams.

All of this means that a developer of this site should be working to mitigate any adverse impacts on the tributaries and the Niantic River. GRE should have studied and considered the fish and macroinvertebrate populations in Oil Mill and Stony Brooks as well as available trout spawning habitat in its handling of stormwater and necessary buffer areas to protect these streams and their biota. It did not. Nor did GRE discuss the site with DEEP Fisheries Division, or review, consider and cite reports that are readily available and provide information on these subjects, including, but not limited to *The Niantic River Watershed Protection Plan - Watershed-wide Strategies to Prevent Nonpoint Source Pollution* (see <https://www.nianticriverwatershed.org/%20the-watershed/nrwac/> or [http://www.ct.gov/deep/cwp/view.asp?a=2719&q=379296&deepNav\\_GID=1654#nianticriver](http://www.ct.gov/deep/cwp/view.asp?a=2719&q=379296&deepNav_GID=1654#nianticriver)) and the Town of Waterford's management plan for the Stony Brook watershed (see [http://www.waterfordct.org/sites/waterfordct/files/file/file/stony\\_brook\\_watershed\\_management\\_plan\\_part\\_1.pdf](http://www.waterfordct.org/sites/waterfordct/files/file/file/stony_brook_watershed_management_plan_part_1.pdf) and [http://www.waterfordct.org/sites/waterfordct/files/file/file/stony\\_brook\\_watershed\\_management\\_plan\\_part\\_2.pdf](http://www.waterfordct.org/sites/waterfordct/files/file/file/stony_brook_watershed_management_plan_part_2.pdf)).

Aquatic surveys are needed and in the absence of collecting that information, it is impossible for GRE to tell the Council that this project will not have an adverse environmental effect. It is also impossible for the Council to actually make that determination.

**Q15. What other findings have you made regarding GRE's proposed project?**

A15. I was very troubled to discover that GRE has in several significant ways ignored the recommendations of its own environmental consultant. For example, GRE *admitted* in responses to interrogatories that it failed to follow the recommendations of its own consultant when it planned to place 300 solar panels within 100 feet of wetlands on the site. Davison

Environmental wrote: “I would recommend a minimum 200-foot buffer around wetlands, with the first 100-feet being a no disturbance zone where existing forest remains intact. The second 100-feet should remain nonimpervious [sic] (i.e., no solar panels) but can include stormwater management features and associated grading.” (Petition, Exhibit H at 9.) GRE claimed not to have placed solar panels in such proximity to the project site, but that was not accurate. In response to questions from STR-STH, GRE said it would remove those 300 panels if the Council desires that to happen. So even when GRE had concrete recommendations from its own experts, it failed to follow them.

Similarly, Davison Environmental stated: “All clearing should occur between October 15th and March 1st, to prevent impacts to wildlife.” (Petition, Exhibit H at 10.) This is a sound recommendation. Yet GRE’s plans did not propose to follow it. In response to interrogatories on the issue, GRE claimed that because the subsequent VHB report (which was on its face just a memo to DEEP about the site surveys VHB conducted for a small number of state-listed species) and the February 2020 NDDB letter were silent on the question of proper clearing time, GRE is not actually limited in the time of year it may clear the project site. It therefore plans to commence site work during the spring, a period likely to cause the most disruption to resident wildlife, and a time when most annual reproductive activities are taking place. Again, GRE is showing that it will ignore its own consultants’ recommendations.

**Q16. Do you have any other comments about DEEP’s NDDB determination?**

A16. GRE appears to think that the Wildlife Division determined that avoidance measures can be put in place for the eastern ribbon snake during construction, that means DEEP has approved tree clearing between April 1 and October 15, so it somehow does not matter that GRE’s own consultant recommended against that. The February 28, 2020 NDDB Determination *did not* specifically approve tree clearing in that time period. It did, however, state “if work,

traffic or staging will occur within the 300ft wetland buffer of 'wetlands' during the snakes [*sic*] active season (between April 1 - Oct 15) apply the following avoidance measures..." No mention is made of any other areas on the project site outside of wetland areas and the utility ROW, let alone granting wholesale permission for any tree clearing.

GRE's wildlife consultant stated that he "wanted clearing limited to October 15 through March 1 "to prevent impacts to wildlife," not just to prevent impacts to the eastern ribbon snake. (Petition, Ex. H at 10.) For example, this time period for no tree clearing would also be partially protective for any bat species that might be roosting on the Waterford site. At the Quinebaug solar site, the on-site surveys that discovered the presence of two state-listed endangered bat species illustrate the necessity for undertaking complete on-site wildlife surveys rather than relying solely on presumptions. To avoid potential impacts to those two bat species, which roost in trees on the Quinebaug site, the Council limited tree clearing to the period between October 1 and March 31. (Petition No. 1310A, Findings of Fact at 42 and Opinion at 8.) Had the developer of the Quinebaug site not conducted those surveys, the Council would not have known that it needed to place such a condition on its approval to protect those endangered species. Here, because the USFWS planning tool indicates a listed bat species may be on the Site, and GRE has not presented any evidence that bats do not roost on the Site - because it knowingly chose *not* to conduct bat surveys - protective measures regarding tree clearing must be undertaken to protect listed bat species, just as GRE is proposing for the eastern ribbon snake.

Also included in the NDDB Determination was some brief information regarding the life history of the eastern ribbon snake, which noted its preference for sunny areas bordering streams and swamps and having a dormancy period from October 15 through March 31. However, actual surveys have provided observational evidence that ribbon snakes can be found

several hundred meters in horizontal distance and up to 100 meters higher in elevation from its typical waterside habitats during early April and after mid-September. Thus, this is evidence for additional critical habitat areas used by this species and also establishes a more restrictive temporal window for any potential site work. Klemens (1993) also brings up the issue of ribbon snake winter hibernacula, which he concluded could be found in rocky upland areas, but also near water where various types of cover might exist (e.g., the noted ribbon snakes using piles of railroad ties in one area he observed). The winter hibernacula issue was not discussed in any of the petition materials, so there is still a less than complete plan for protecting this species of Special Concern that can only be resolved by further environmental assessments.

I also note the complete absence of any details presented regarding the vascular plant species Virginia copperleaf (*Acalypha virginica*; called Virginia three-seeded-Mercury by VHB biologists in Attachment 4 of Petition Exhibit I), which is also mentioned in the DEEP February 2020 letter. The latter notes:

This plant is found in dry, open soils and bloom [sic] in August-September ... Delineate and avoid impacts to this plant from construction activities. Where possible, encourage habitat characteristics that will promote the plant onsite. Additionally, please forward location information to our program for our records.

GRE's information and plans to protect this plant should be part of the record of this proceeding as much as the aforementioned less than fully adequate plans for construction activities deemed necessary to protect the eastern ribbon snake.

Finally, I would just note that although it is laudable that GRE is so concerned over listed species, which are the sole subject of NDDB determinations, STR-STH and all of those concerned with the health of the Niantic River watershed have a broader interest in all of the fish and wildlife populations that will be impacted by this development. The presence of brook trout in both adjacent streams and additionally of brown trout (possibly of sea-run origin)

found in Oil Mill Brook (Cole Ecological, Inc. 2016) are of great concern and are very worthy of conservation. These fishes are indicative of very good water quality, as are the suite of aquatic insects also found in these streams. Wild trout populations are not common in Connecticut due to their specific habitat requirements for cool, clean waters, and they should be protected.

Knowledge of other listed aquatic species of concern, such as mussels, is lacking. This is one of the reasons why an assessment of aquatic biota should have been undertaken by GRE, as was most certainly mentioned by the DEEP August 24 letter.

**Q17. Do you have any other opinions or concerns about this project?**

A17. I have many more concerns, some of which have been addressed in previous submissions to the Council on behalf of STR-STH in the form of comment letters and answers to interrogatories. For now, I'd like to comment on the clear cutting and loss of core forest. The clear cutting of 75 acres will eliminate significant forest habitat for terrestrial and aquatic species which reside in these areas, as well as those who use the wetland and watercourses on the site. I do not believe that the fragmentation of core forest blocks for the placement of many thousands of ground-mounted photovoltaic panels is good policy for the State of Connecticut. Besides the complete loss of habitat for obligate forest species, there are other effects to vegetation and forest blocks as a result of land clearing and the accompanying fragmentation of forest lands. (USFHA and CT DOT 2007.) These include induced edge effects, such as changes to topography, light regimes, hydrology, substrates, and the introduction and proliferation of non-native invasive species. Passage corridors for wildlife are also diminished. The adverse effect of forest fragmentation was even noted by GRE's wildlife consultant, as discussed above.

As CEQ (2020) recently noted:

Core forests provide habitat for many species of wildlife that cannot tolerate significant disturbance. Forests that are fragmented, or divided by roads and clearings, provide some forest functions but are not fully-functioning forest

ecosystems. Fragmented forests are known to provide substandard or poor habitat for some species of wildlife and, in many cases, less opportunity for hunting and other types of recreation. Invasive species of plants and animals often colonize areas in the wake of activities that result in fragmented forests.

**Q18. What are your conclusions regarding GRE's proposed project?**

A18. Overall, this project is not a significant improvement over the original petition. GRE has failed to provide the Council and DEEP with the information they wanted, and that failure should be fatal to this reopened petition. Nothing in GRE's submission demonstrates that its project is protective of the sensitive, high water quality brooks bracketing the site. As currently designed, this project will lead to pollution of the waters of the state, and will harm the health of tributaries to the Niantic River. Moreover, as GRE had the opportunity to fix its mistakes once already and because the problems with this petition are so fundamental that they cannot be fixed in a later development and management plan, the Council should deny the reopened petition with prejudice.

**Q19. Based on your review of GRE's submissions, do you have any recommendations for the Council should it nevertheless decide to approve this project?**

A19. Of course, I hope that the Council will not approve this project, as I do not believe it is a significant improvement over GRE's first petition. I believe building this project will cause damage to the Niantic River watershed, including to its aquatic life and biota. If the Council nevertheless decides to approve the project, I would recommend the following conditions be placed on GRE:

- Site clearing should only be permitted between October 15 and March 1, to protect wildlife on site, including reptiles, amphibians and bats.

- Site disturbance/clearing should be limited to phases of not more than 5 acres at a time, consistent with the recommendations of DEEP, the CEQ and Steve Trinkaus.
- DEEP's recommendations with respect to protections for the eastern ribbon snake should be adopted.
- GRE should be required to remove the 300 solar panels it has admitted would be located within 100 feet of a wetland in violation of its own consultant's recommendations.
- Before, during and, to be sure of monitoring variable annual conditions, including extreme weather events, for at least 5 years after construction is completed, GRE should be required to install monitors to continually measure water temperature and turbidity in all water courses receiving stormwater discharges. These include the unnamed tributary that runs parallel to Oil Mill Brook and Stony Brook and its tributaries, all of which feed directly into the Niantic River. GRE should be required to first obtain consensus on the study design from the parties and intervenors in this proceeding and then report all data to DEEP, the Council, the Town and STR-STH, generally at least once each quarter. This information should also be made freely available online to both all of the interested parties and the public.
- If the continuous monitoring reveals any adverse changes to the brooks, such as indicating that the temperature or turbidity of those tributaries is increasing over the ambient ("before") condition, GRE should be ordered to remedy the situation by undertaking an engineering study and constructing changes to the site stormwater design acceptable to DEEP, the Town, and STR-STH.

However, even if these conditions were to be imposed by the Council should this project be approved, I do not believe that an approval is appropriate. This site is too important to the Niantic River watershed to be developed in this manner and none of GRE's actions indicate that it has recognized the sensitivity of the site and approached its design work with the intent of protecting the surrounding environment and its biological resources.

The statements above are true and accurate to the best of my knowledge.

  
\_\_\_\_\_  
Donald J. Danila

6/10/20  
\_\_\_\_\_  
Date

#### **ATTACHMENTS**

Exhibit A - CV of Donald Danila

Exhibit B - Letter from DEEP to Siting Council re: Petition No. 1347, dated Aug. 20, 2018

Exhibit C - Map of Area Surrounding the Proposed Site showing proximity to Niantic River Estuary and delineating streams within and around the site

Exhibit D - LIDAR Map of Area Surrounding the Proposed Site showing proximity to Niantic River Estuary and delineating streams within and around the site

# **EXHIBIT A**



Power plant thermal plume studies and effects of temperature on aquatic organisms  
Movements and migratory behavior of fishes  
Screening and water intake studies, including impingement survival studies  
Hydroelectric station FERC licensing studies and report preparation  
Statistical analyses of biological data using SAS and other computer-based software  
Technical report and scientific paper writing and editing  
Provided expert testimony in civil court and CT DEEP NPDES Permit proceedings for Millstone Power Station

#### Scientific Publications and Presentations at Professional Meetings

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- Danila, D.J., and J.D. Miller. 1994. Critical periods in the formation of winter flounder (*Pleuronectes americanus*) year-class strength. 18<sup>th</sup> Annual Larval Fish Conference, Early Life History Section of the American Fisheries Society, June 26-28, 1994, St. Andrews, NB, Canada.
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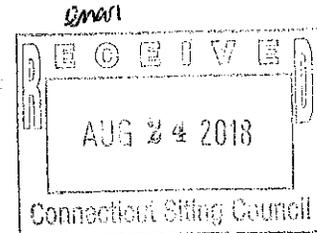
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# **EXHIBIT B**



August 20, 2018

Robert Stein, Chairman  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051



RE: 16.78 MW Solar Photovoltaic Electric Generation Facility  
GRE GACRUX LLC  
117 Oil Mill Rd, Waterford CT 06385  
Petition No. 1347

Dear Chairman Stein:

The Department of Energy & Environmental Protection (DEEP) has reviewed the above referenced *Petition for Declaratory Ruling* for the installation and operation of a 16.78 megawatt AC ground-mounted solar photovoltaic electric generating facility and offers the following comments for your consideration.

GRE GACRUX LLC submitted this 16.78 MW project into the Small Scale Clean Energy Request for Proposals (RFP) issued by DEEP. Connecticut solicited and selected renewable energy projects pursuant to Section 1(b) of Connecticut Public Act 15-107, *An Act Concerning Affordable and Reliable Energy* (P.A. 15-107) and Sections 6 and 7 of Connecticut Public Act 13-303, *An Act Concerning Connecticut's Clean Energy Goals* (P.A. 13-303). Bringing grid-scale renewable energy projects on line is an important step forward towards a cheaper, cleaner, and more reliable energy future for the ratepayers of Connecticut. In the most recent legislative session, Connecticut committed to procuring 40% of its electricity from Class I renewable sources by 2030. Connecticut also committed to a mid-point reduction of carbon emissions of 45% below 2001 levels by 2035 on the way to attaining the state's longer term goal of an emissions reduction of 80% below 2001 levels by 2050. Grid scale renewable energy projects are essential to maintaining compliance with these statutory commitments. After reviewing all the projects submitted through the RFP process, DEEP selected the GRE GACRUX LLC project as one of the projects authorized to negotiate a long-term power purchase agreement with the utilities, Eversource Energy and The United Illuminating Company.

**Site Visit**

Field reviews of the site were conducted on June 29, 2018 and July 25, 2018. The parcel is an interior lot accessed by a dirt/gravel road off of Oil Mill Road. The zone for this area is rural residential, RU-120. The property consists of one parcel totaling 152.23 acres. Approximately

90 acres will be utilized for the project. At the time of the site visit a forest harvest was being conducted by the landowner. A plan for the harvest was submitted to the Town of Waterford by a Forester or Supervising Forest Harvester in January 2018 and accepted by the municipality. The Town of Waterford is monitoring the site for wetland impacts and wetland crossings.

The parcels contains wetlands, large bedrock outcrops and steep slopes. During the site visits, DEEP noted the steep topography, which ranges from approximately 100 feet to 250 feet. Discussions with the consultant for the proposed project during the site visit revealed that only cursory soils and geotechnical surveys were conducted, and further borings would be needed to determine constructability of the proposed stormwater detention basins.

### **Stormwater Management**

Construction-related land disturbances of 0.5 acres or larger are regulated in Connecticut pursuant to the Connecticut Soil Erosion and Sediment Control Act under Sections 22a-325 to 22a-329, inclusive, of the Connecticut General Statutes (CGS). Construction-related land disturbances of one (1) acre or larger are also regulated under CGS Section 22a-430 and under Section 402(p) of the federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) program. Construction projects involving five (5) or more acres of land disturbance require an individual NPDES discharge permit from DEEP, or may be eligible to register for coverage under DEEP's NPDES General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). DEEP has issued guidance for construction of solar farms for stormwater management dated September 8, 2017 (attached).

Approximately 90 acres of the site will be cleared for development, which involves clear cutting, grubbing, grading, top soil removal and replacement. Construction is anticipated to take 12 months beginning in spring 2019. The site is proposed to be constructed in 13 phases. The application states that hydroseeding will be done to stabilize each phase, however it does not state what methods will be used during winter, frozen ground conditions or during spring thaw. Given the compressed construction schedule, and that the site is proposed to be constructed in 13 phases, the timeframe does not allow for sufficient site stabilization in between each phase. DEEP has experienced adverse water quality impacts with three recent solar projects due to this type of aggressive construction schedule not allowing for adequate site stabilization and non-compliance with stormwater pollution control plans and other NPDES stormwater permit requirements, which resulted in the issuance of Cease and Desist Orders to those entities. DEEP strongly advises planning for a longer construction schedule to appropriately address each phase with stormwater controls and stabilization methods, and provide time for prompt implementation of corrective actions if needed. Also, since a forest harvest was being conducted by the landowner prior to development, should significant soil disturbance occur as a result of the harvest, DEEP may require site stabilization to be established prior to authorizing the commencement of any construction activities at the site. Such soil disturbances can reasonably be expected to increase soil erosion and sedimentation on and off the site prior to construction. As a component of the permitting process, DEEP may require the applicant to hire an independent third party to oversee and verify compliance with stormwater management requirements during construction.

### **Stormwater Discharge and Infiltration**

In post-construction conditions, smooth surfaces are created through grading and vegetation that were not present in pre-construction conditions, in which there are rocks, depressions and a

variety of vegetation, roots and soils. Those types of pre-construction characteristics can trap, slow down and infiltrate runoff. On the contrary, in post-construction conditions, the smoothed surfaces can increase velocity on the sloped areas of this site. The petition should address potential measures to mimic pre-construction conditions in order to slow water down and allow for infiltration to control stormwater discharge peak flowrates and velocity and total stormwater volume. The petitioner needs to ensure the design factors smooth surfaces, compacted soils, soil types, slopes and bedrock into the calculations for pre-construction, during construction and post-construction design flows, velocities and volume. Also, a detailed geotechnical study of the site should be completed to verify constructability and size of the drainage basins and level spreaders indicated on the site plans.

In addition, removing topsoil from the site creates a loss in organic matter required for plant growth necessary for long term site stabilization. If the topsoil is not replaced or is mixed with subsoil, full vegetation may not occur in a year and could take a few years to stabilize. The applicant should address long term stabilization and site monitoring to fix bare patches by adding topsoil or re-seeding hard to grow areas.

Finally, a road network is proposed along the perimeter on rock outcrops, ledge and steep drop offs. Water runoff on this site will be changing from land overflow to point discharge. Detention basins are proposed along the perimeter to account for the runoff and allow sheet flow with the use of level spreaders. However, these level spreaders are on the property line. The site plans do not show the topography or location of the receiving waters for these level spreaders, and there are no notes indicating how these areas off site will be restored if erosion and sedimentation controls were to fail. Permission may be required from neighboring property owners to allow concentrated discharge onto their property.

### Watershed

The petition lacks recognition of the current hydrologic connections of this proposed development site to the shared watersheds of Stony Brook and Oil Mill Brook, or to their individual water quality assessments. This watershed contains a high water quality stream system as supported by over ten years of water quality data from DEEP, the U.S. Geological Survey, the local Niantic River Watershed Committee, as well as stream macroinvertebrate data, and recent cold and cool water fisheries population and habitat evaluations. The Petition documents do not appear to sufficiently evaluate the proposed stormwater management systems for potential thermal and sediment impacts to downstream aquatic resources or describe any measures to mitigate any such potential adverse water quality impacts.

A DEEP approved watershed-based plan was developed for the full Niantic River watershed in 2006 (Niantic River Watershed Plan), followed by a Guided Summary in 2009. Oil Mill Brook and Stony Brook each are currently assessed as Fully Supporting for Aquatic Life use designation, and a pending 2018 assessment should be available in early fall 2018. Stony Brook and Oil Mill Brook are two of the three main freshwater tributaries that feed into the Niantic River estuary and are classified as Class A waters which have the potential to meet the criteria for drinking water as well as provide fish and wildlife habitat. Stony Brook and Oil Mill Brook are estimated to provide one third of the annual nitrogen load from surface fresh waters entering the nutrient-over enriched estuary. The Niantic River estuary is a DEEP priority coastal embayment for watershed restoration action planning by 2022. A tremendous amount of research, data collection and synthesis into nutrient loading and cycling within the Niantic River

watershed and the estuary connections with Long Island Sound is well documented and is currently supporting the development of that DEEP action plan.

The Niantic River does not currently meet water quality standards because of high levels of indicator bacteria and observed degradation of aquatic life. The *List of Impaired Waters* states that the water quality of the Niantic River is not supporting the aquatic life known to inhabit the estuary. The ecological changes are thought to be caused by excessive nutrients entering the river. Stormwater runoff transports pollutants off land into the many tributaries feeding the Niantic River. Polluted runoff is the greatest water quality management challenge for the Niantic River watershed and it is the most manageable of all potential sources of pollution to the river. One of the key findings in this study was the number of storm sewer outfalls directly discharging untreated water into the Niantic River. Though the location of this project is upstream of the River, it is adjacent to the Stony Brook and Oil Mill Brook tributaries. The site plans provided do not show the topography or location of the receiving waters in the various discharge points along the site. In addition, there is not an opportunity for infiltration in the plans. Stormwater management should be designed so there is not an increase in total volume of water or pollutants leaving the site. Erosion and sedimentation controls should be a priority at this location. Effectively managing nonpoint sources relies on land use management and efficiency of stormwater practices.

#### **Wetlands**

In the Wetland and Biological Assessment Report submitted by the applicant, the soil scientists indicate that the wetlands identified as 1 and 2 are hillside groundwater slope wetlands. These wetlands develop on hillsides where groundwater discharges to the surface as springs and seeps. The soil scientists noted that the seeps are visible in the upland/wetland interface, and that a key feature for water quality is the pronounced bedrock and boulder outcrops where cold, well-oxygenated groundwater discharges from fractures in bedrock. Before upland activities take place such as breaking up the rock outcrops for grading and leveling for construction, the effect on wetland hydrology must be addressed.

#### **Wildlife**

This site does not fall in an existing Natural Diversity Database area, but it is likely this location has never been surveyed. The location of the special concern species, the Eastern ribbon snake, and the biological assessment have been furnished to DEEP's Wildlife Division. The wildlife assessment was generally based on habitat with a focus on vernal pools and not on detailed surveys which may have identified state listed plants, presence/absence of bats or other animals, and state listed insects in the area. Breeding bird surveys were not conducted, though avian species were observed when the biologists were at the site. Given the lack of available information, it is recommended that a comprehensive wildlife survey be conducted at the site.

#### **Core Forest**

State of Connecticut Public Act 17-218, requires DEEP and the Siting Council to consider the impact of certain proposed energy-related projects on the environment, prime farmland or forest land, or agriculture, before allowing them to proceed. The Act's requirements for solar facilities do not apply to facilities that DEEP selected in solicitations issued before July 1, 2017. While this project is exempt from requiring a letter from DEEP that the project will not materially affect the land's status as core forest, impacts to core forest should be addressed in the petition. Core forest is defined as unfragmented forest land that is at least 300 feet from the boundary between forest land and non-forest land, as determined by the DEEP commissioner.

This proposed project site is 150 acres of undeveloped land. The interior area of this parcel would be defined as core forest using the 300 feet from a non-forested area. Land surrounding this parcel is currently undeveloped forestland zoned as General Industrial and Rural Residential 120. As previously noted in the Site Visit section above, at the time of the site visit, a forest harvest was being conducted by the landowner. A harvested area creates valuable habitat and does not diminish the value of the greater core forest. By creating such early succession habitat, many species of Greatest Conservation Need will benefit for more than fifteen years.

**Errata:**

1. Several site plan sheets are missing from the application's grading and site utilities sections (G4, SU 4,7,8,9,11,12).
2. The Landscape notes on page LL-17 of site plans follow typical seeding and planting plans that may not apply to a solar application. For example several of the notes refer to the planting and staking of evergreen and deciduous trees. The applicant should clarify if trees are scheduled to be re-planted on the site without potentially shading panels.
3. The Site Work, General Notes section (GN-1) states the agent from the Town of Waterford is responsible for marking the clearing limits. The Town of Waterford does not have jurisdiction over this project. The applicant and contractors are the responsible parties. While these notes could apply to a variety of construction projects, they should be revised to the specific construction for solar projects. There is no mention of the use of a tackifier or erosion control blankets with site stabilization methods, and note #32 on how the wetlands are marked in the field is incomplete.
4. Cover page, Volume 1, states Watertown instead of Waterford
5. Cover page for Appendix E is the Stormwater System Operation and Maintenance Plan, but the plan is labeled as Appendix F.
6. Appendix F states water quality volume and release rates have been omitted from this report due to lack of impervious surfaces. This requires further explanation due to the rock/ledge on site, existing gravel roads and proposed improved gravel roads, as well as creating smooth surfaces in post-construction, and accounting for soil compaction during construction.

Thank you for the opportunity to review this project. If there are any questions regarding these comments, please contact me at 860-424-3739 or [Linda.Brunza@ct.gov](mailto:Linda.Brunza@ct.gov) if there are any questions.

Respectfully yours,

*Linda Brunza*

Linda Brunza  
Environmental Analyst

**Cc: Robert Klee, Commissioner**

## **Stormwater Management at Solar Farm Construction Projects September 8, 2017**

Solar farms are on-the-ground installations of arrays of photovoltaic cell panels, supporting structures and related equipment for the production of electricity. As with other types of construction projects, the construction of solar farms can involve land clearing, grading, excavation, trenching, dewatering and similar activities that create land disturbances which potentially result in soil erosion and sediment discharges polluting wetlands, streams and other surface waters. Construction-related land disturbances of 0.5 acres or larger are regulated in Connecticut pursuant to the Connecticut Soil Erosion and Sediment Control Act under Sections 22a-325 to 22a-329, inclusive, of the Connecticut General Statutes (“CGS”). Construction-related land disturbances of one (1) acre or larger are also regulated under CGS Section 22a-430 and under Section 402(p) of the federal Clean Water Act and the National Pollutant Discharge Elimination System (“NPDES”) program. Prior to the start of such regulated activities, authorization is required from local authorities and, for larger projects, the Connecticut Department of Energy and Environmental Protection (“Department”). Construction projects involving five (5) or more acres of land disturbance require an individual NPDES discharge permit from the Department, or may be eligible to register for coverage under the Department’s NPDES General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit).

The Department has encountered repeated problems associated with solar farm construction projects covered under the general permit, from the registration process through construction activities. Although in no way an exhaustive list, the following are common problems associated with solar farm general permit registration applications and ways to address such problems:

- Applicants have been submitting registration applications that lack the requisite information or the requirements necessary for authorization under the general permit. The Department requires a complete and sufficient application when a registration application is filed, and may reject any registration application it deems to be incomplete or insufficient.
- Applicants are not adhering to the sixty (60) day/ninety (90) day time frame for Department review as required by Section 3(c) of the general permit. While the Department has on occasion shortened the review timeframe, Applicants are expected to allocate no less than the requisite time frame for the registration application review process and must plan accordingly.
- Registration applications for solar farm projects often fail to identify the project’s contractor and sub-contractors. Section 5(b)(1)(viii) of the general permit mandates that this information be included in the registration application.

- Applicants have been repackaging the Siting Council submittal, which is not acceptable. Section 3(c)(2)(D) of the general permit mandates that the application submittal include only materials required to support the Stormwater Pollution Control Plan (“SWPCP”). This information must be up-to-date and accurate. Any superfluous information delays the registration application review process.
- SWPCPs for solar farm projects are often lacking sufficient detail and information. An approvable SWPCP shall include, but not be limited to, the location of all erosion, sediment and stormwater control measures including detailed design cut sheets with supporting calculations, construction means and methods, project phasing (i.e., site planning, pre-construction, construction, and post-construction stabilization, etc.), construction sequencing and a construction schedule.
- The Applicant’s design professional must be well-versed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (“E&S Guidelines”), specifically the techniques found in Chapter 4, Large Construction Sites, the 2004 Connecticut Stormwater Quality Manual, as well as *current* best management practices (BMPs) recognized by the International Erosion Control Association (IECA), provided such BMPs are equal to or better than the E&S Guidelines.
- From the Department’s perspective, an approvable SWPCP will include methods for avoiding compaction of soils, disconnection and reduction of runoff associated with solar panel arrays, avoidance of concentration of stormwater, and other measures necessary to maintain or improve pre-construction hydrologic conditions.
- Applicants need to follow the SWPCP review checklist when preparing the SWPCP, giving specific attention to post-construction stormwater controls and the development of a detailed long-term maintenance plan to ensure that the SWPCP meets the terms and conditions of the general permit.

Subsequent to authorization for coverage under the general permit, the Registrant is responsible for ensuring compliance with all terms and conditions of the general permit and the approved SWPCP once construction has been initiated. However, for solar farm projects, Registrants often fail to comply with the terms and conditions of the general permit, including the approved SWPCP. In particular, Department staff have observed the following issues that a routine inspection protocol and proper oversight, as required under the general permit, would have prevented, including but not limited to:

- pre-construction site planning and management deficiencies (e.g., existing vegetation, scheduling, training, phasing/sequencing, tree protection, etc.)
- ineffective placement, maintenance, and/or repair of administrative/procedural, vegetative, and structural BMPs (e.g., erosion, sediment and stormwater runoff controls, good housekeeping, materials management, and training)
- lack of thorough inspections
- ineffective or untimely corrective action
- ineffective stabilization practices
- ineffective permanent post-construction controls (i.e., store, treat and direct stormwater quality and quantity to pre-construction levels)

Such issues at solar farm construction projects raise concerns, since such projects often create areas of land disruption larger than the generally accepted BMPs of five (5) acres anticipated under the general permit. As a result, any applicant seeking coverage under the general permit

for a solar farm construction project should take care to address the issues noted above. While by no means exclusive, some recommendations that should be incorporated into a SWPCP to address these issues include:

- Ensuring that only a Professional Engineer and/or Landscape Architect, as defined in Section 2 of the general permit, who meets the qualifications described in Section 5(b)(4)(A)(ii) and who has been approved in writing by the Commissioner, serve as the Commissioner's agent to inspect the site and also serve as the qualified inspector for the purposes of Section 5(b)(4) of the general permit ("authorized professional"). Such authorized professional must remain in good standing with the Connecticut Department of Consumer Protection and be technically and ethically qualified to inspect the site and be retained for the duration of the construction project until the Notice of Termination acceptable to the Commissioner has been filed as described below.
- Ensuring that the authorized professional prepare a proposed inspection checklist to assure the construction project is being conducted in compliance with the terms and conditions of the general permit, and the approved SWPCP is implemented in accordance with the general permit. The inspection checklist shall comply with Section 5(b)(4)(B)(iii) of the general permit, and include a space for the authorized professional's signature and professional stamp.
- Ensuring that the credentials for the authorized professional proposed by the Applicant and the proposed inspection checklist prepared by such authorized professional be submitted for the review and approval of the Commissioner and be included with the registration application for the general permit. No other professional may serve as the authorized professional without the prior submittal of relevant credentials and inspection checklist for the Commissioner's review and written approval.
- Ensuring that the authorized professional personally perform all pre-construction, construction, and post-construction site inspections; perform inspections at the end of any storm event whether or not such storm generates a discharge; and prepare and submit all inspection reports including the supporting inspection checklists in compliance with Sections 5(b)(4)(A) and 5(b)(4)(B) of the general permit.
- Ensuring that the authorized professional report any violations of the terms and conditions of the general permit or the SWPCP to the Commissioner's designee within two (2) hours of becoming aware of such violation, or at the start of the next business day of becoming aware of such violation outside normal business hours and shall, within five (5) days, prepare and submit a signed and stamped written report, which documents the cause of the violation, duration including dates and times, and corrective action taken or planned to prevent future occurrences.
- Ensuring that if circumstances necessitate a revision to the SWPCP, the authorized professional works with the Permittee's design professional to ensure compliance with the terms and conditions of the general permit, and any such change to the SWPCP shall be submitted for the review and written approval of the Commissioner.
- Ensure that the authorized professional reviews all stormwater monitoring reports to evaluate the effectiveness of the SWPCP and to document any adverse impacts that any stormwater controls on the construction site or discharges from the construction site may have on wetlands, streams, any other receiving waterbodies. Such evaluation shall be documented in the inspection reports and inspection checklists performed pursuant to Section 5(b)(4) of the general permit.

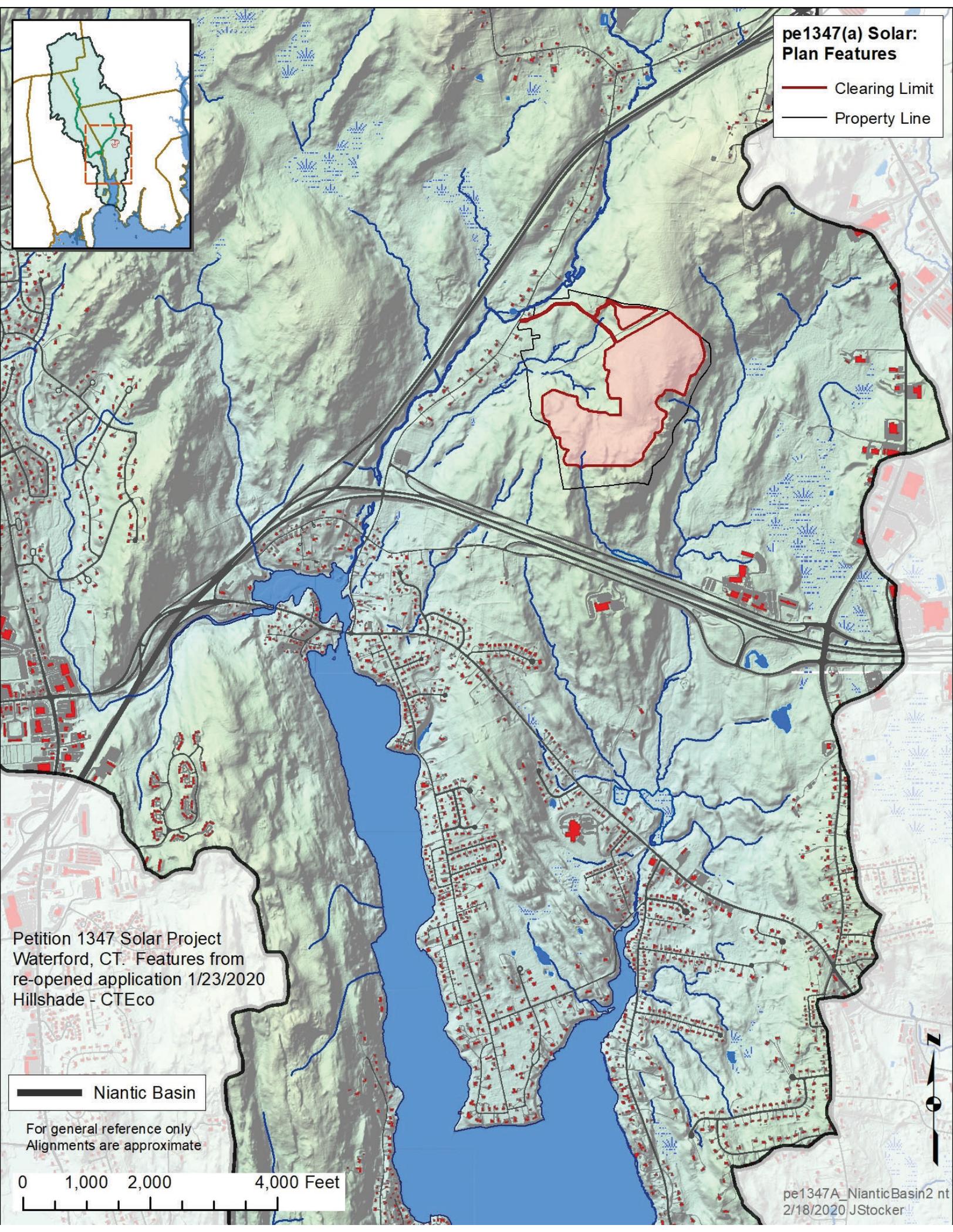
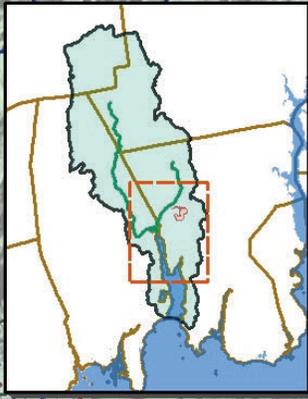
- Ensuring that, in the event the authorized professional identifies a violation of the terms and conditions of the general permit, the SWPCP, or otherwise identifies adverse impacts on wetlands, streams or any other receiving waterbodies, that construction activity shall immediately cease and the site stabilized until such violation or adverse impacts have been corrected.
- Ensuring that reporting and record-keeping of all inspection checklists and inspection reports comply with the requirements of Section 5(d) of the general permit, except that a copy shall also be submitted electronically to the Department within ten (10) days from the date such inspection was performed.
- Ensuring that all inspection checklists and inspection reports comply with the requirements for Certification of Documents in Section 5(i) of the general permit, including the requirement that such checklists and reports shall also be prepared, stamped and signed by the authorized professional.
- After completion of a construction project, ensuring that a Notice of Termination is filed in compliance with Section 6 of the general permit, including the requirement that such Notice of Termination be stamped and signed by the authorized professional certifying that such authorized professional has personally inspected and verified that the site has been stabilized following the first full growing season (i.e., April through October) in the year following completion of the construction project.
- Ensuring that any transfer of the registration comply with the requirements of Section 5(m) of the general permit.

These recommendations are by no means intended to be exclusive. To help address the issues noted above, the Commissioner will also be considering the posting of a performance bond or other security, in accordance with Section 22a-6(a)(7) of the Connecticut General Statutes, to assure the solar farm construction project maintains compliance with the terms and conditions of the general permit and the SWPCP.

# **EXHIBIT C**

pe1347(a) Solar:  
Plan Features

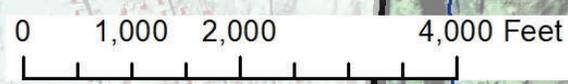
- Clearing Limit
- Property Line



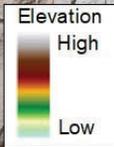
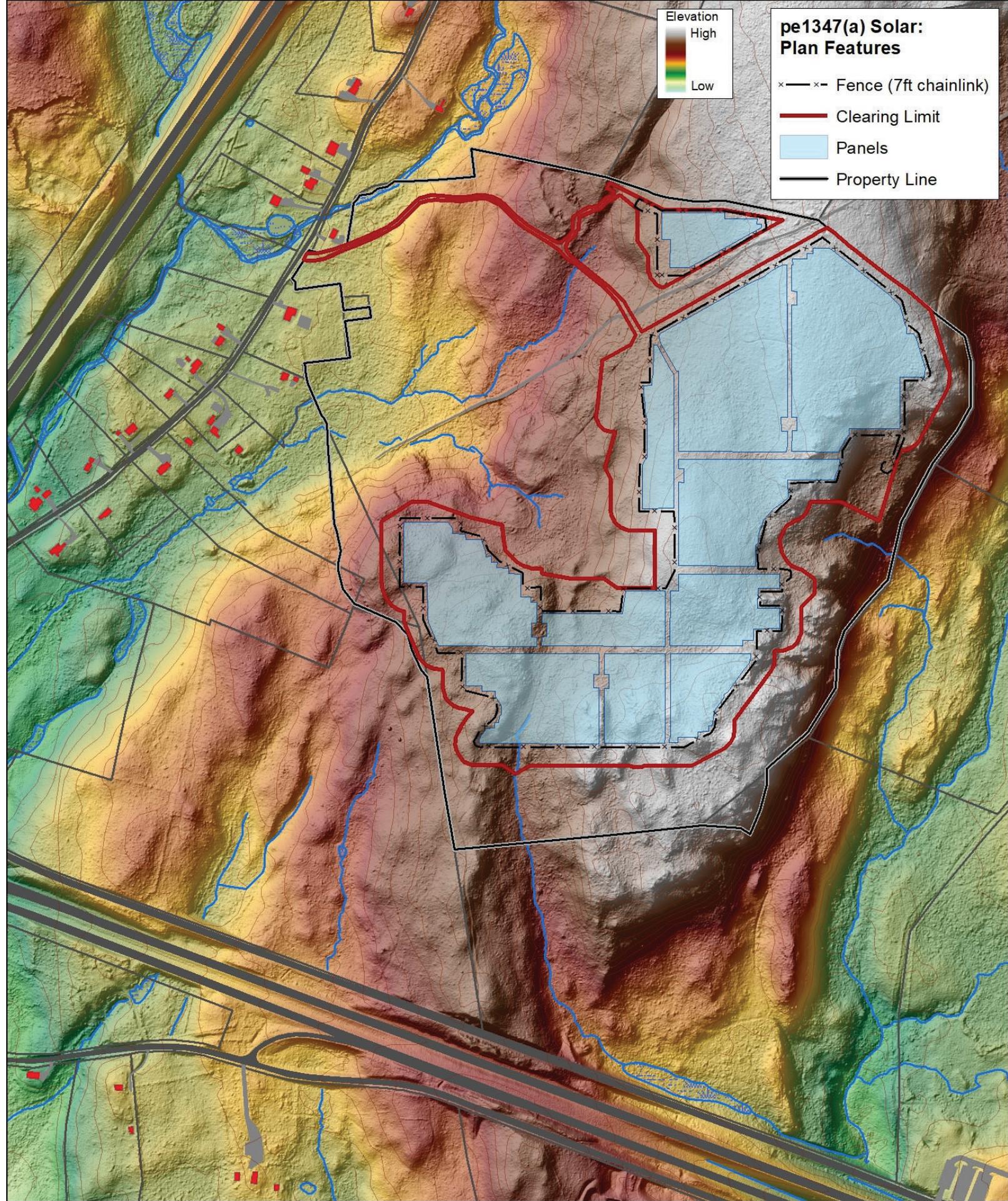
Petition 1347 Solar Project  
Waterford, CT. Features from  
re-opened application 1/23/2020  
Hillshade - CTEco

— Niantic Basin

For general reference only  
Alignments are approximate



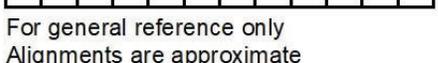
# **EXHIBIT D**



- pe1347(a) Solar:  
Plan Features**
- × — × — Fence (7ft chainlink)
  - Clearing Limit
  - Panels
  - Property Line

pe1347A\_Features.mxd nt 2/12/2020 JStocker

0 300 600 1,200 Feet



For general reference only  
Alignments are approximate



Petition 1347 Solar Project, Waterford, CT  
Digitized Layout - features from re-opened application 1/23/2020  
Base image: LIDAR Elevation - CTEco

CERTIFICATION

I hereby certify that a copy of the foregoing document was delivered by first-class mail and e-mail to the following service list:

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