STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

APPLICATION NO.: 202207386

SR LITCHFIELD, LLC SR Litchfield Site Town Farm Road, Torrington, CT

FEBRUARY 21, 2023

PETITION FOR DECLARATORY RULING AND REQUEST FOR PARTY STATUS OR NOTICE OF INTERVENTION

Ranald K. Nicholas and Robin L. Nicholas (collectively, "Petitioners") submit this petition for declaratory ruling pursuant to Conn. Gen. Stat. §§ 4-176, 22a-430, 22a-430b(c), and 22a-19, and R.C.S.A. §§ 22a-3a-4 and 22a-430-3(6)(E). Petitioners seek two forms of relief—a declaratory ruling and to be awarded party or intervenor status pursuant to Conn. Gen. Stat. § 22a-19.

First, Petitioners seek a declaration of whether the above-referenced project (the "Project")—initiated by the applicant SR Litchfield, LLC (the "Applicant")—should be permitted to proceed under a request for authorization under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ("General Permit"), or instead be required to obtain an individual permit.

Petitioners intend to demonstrate that the Project is large and complex, consisting of more than 55,000 photovoltaic modules and an area of approximately 70 acres, located within a 212acre site that spans across two municipalities. Petitioners will further demonstrate that the Project has the potential for substantial stormwater runoff and erosion. Having already been revised numerous times over the last two years due to its complexity and potential for adverse environmental impacts, the Project is not suitable for a General Permit. Instead, Petitioners respectfully request that the Commissioner of the Department of Energy and Environmental

Protection (the "Commissioner") should require the Applicant—if it wishes to continue with the Project—to apply for an individual permit pursuant to Conn. Gen. Stat. § 22a-430b(c) and R.C.S.A. § 22a-430-3(6)(E). Requiring an individual permit for the Project will better protect the waters of the state from pollution, for the reasons explained in greater detail below.

Second, Petitioners can establish that the Project, as currently designed, will unreasonably destroy or impair the public trust in the natural resources of the state of Connecticut. Consequentially, Petitioners seek to be made parties or intervenors to the proceeding for the above-requested declaratory ruling pursuant to § 22a-19. They also seek to be made parties or intervenors to the pending application for authorization under the General Permit, should it continue.

I. <u>PETITION FOR DECLARATORY RULING</u>

A. Name and Address of Petitioners and Petitioners' Counsel

Petitioners:

Ranald K. Nicholas and Robin L. Nicholas 389 Wimbledon Gate N Torrington, CT 06790

Petitioners' Counsel:

Mary Mintel Miller, Esq. Jeffrey N. Kaplan, Esq. Reid and Riege, P.C. One Financial Plaza, 21st Fl. Hartford, CT 06103 (p): (860) 240-1059 (f): (860) 240-1002 (e): <u>mmiller@rrlawpc.com</u> jkaplan@rrlawpc.com

B. Facts and Circumstances Giving Rise to Petition

On or about June 30, 2022, the Applicant submitted its second application to the

Department of Energy and Environmental Protection ("DEEP")¹ related to the Project, which was given an identification number of 2654811 (the "Application"). Submitted with the Application was a Stormwater Pollution Control Plan ("SWPCP"), which included 10 appendices, including Site Civil Design Plans (Appendix C) and Drainage Calculations (Appendix D). The Site Civil Design Plans and Drainage Calculations (collectively, the "Project Plans") have each been revised several times, most recently on December 1, 2022.²

Petitioners have an interest in the Project. They own property that abuts the real property that the Applicant seeks to develop for the Project (the "Project Site"). (Exhibit 1, Affidavit of Ranald K. Nicholas ("Ranald Nicholas Aff."), ¶¶ 3-4; Exhibit 2, Affidavit of Robin L. Nicholas ("Robin Nicholas Aff."), ¶¶ 3-4; Exhibit 2, Affidavit of Robin L. Nicholas ("Robin Nicholas Aff."), ¶¶ 3-4.) Based on the Project Plans, Petitioners will have year-round views of the Project. (Ranald Nicholas Aff., ¶ 5; Robin Nicholas Aff., ¶ 5.) For approximately 20 years, Petitioners have expended time, money, and resources in protecting their property against erosion, which has been caused by excessive water flow running from the Project Site, in particular using rocks to slow runoff from the Project Site. (Ranald Nicholas Aff., ¶ 7; Robin Nicholas Aff., ¶ 7.) Petitioners are deeply concerned that any additional runoff from the Project Site will cause unreasonable harm to their property, as it will lead to an increase in flooding, sedimentation, and erosion. (Ranald Nicholas Aff., ¶ 8; Robin Nicholas Aff., ¶ 8.)

Petitioners retained Steven D. Trinkaus ("Trinkaus"), to assess the Project Plans. (Exhibit 3, Affidavit of Steven D. Trinkaus ("Trinkaus Aff."), \P 5.) Trinkaus is a professional engineer licensed in Connecticut since 1988 and is an expert in the field of Low Impact Development, which focuses on water quality and volume of runoff from development projects. (Id., \P 4.) In

¹ The specific area of DEEP concerned with the Application is the Stormwater Section of the Water Permitting & Enforcement Division of the Bureau of Materials Management & Compliance Assurance.

² Digital copies of the Project Plans are available upon request.

particular, Trinkaus has specific experience in reviewing and preparing reports on stormwater pollution control plans and discerning inadequacies in such plans. (Id. and Ex. A thereto.)

The Trinkaus Affidavit summarizes the reasons for why the Project Plans are inadequate, why an individual permit process is appropriate for the Project to protect the waters of the state from pollution and disruption, and why an individual permit process is otherwise more appropriate under these circumstances. It incorporates, as Exhibit B thereto, a much more detailed report that outlines, in 117 separately numbered paragraphs, a wide range of deficiencies that Trinkaus discovered with the Project Plans (the "Report").

Briefly, upon his review of the Project Plans, Trinkaus found that:

- a) The Applicant's analysis and design of all stormwater management systems are not in compliance with the CT DEP 2004 Storm Water Quality Manual (the "2004 Manual");
- b) The Applicant's stormwater management analysis for post-development conditions is significantly under-estimating the peak rate and runoff volume as the solar panels are not being considered impervious;
- c) The Applicant's erosion control plan is not in compliance with the CT DEP 2002
 Guidelines for Soil Erosion and Sediment Control (the "2002 Guidelines") and
 will not protect the downgradient upland and/or delineated wetland areas;
- d) The Project is not suitable for coverage under the General Permit; and
- e) It is highly likely that the contractors will disturb more than five acres at one time (the limit under the General Permit).

(Id., \P 9.) The bases for Trinkaus' conclusions are explained further below in Part I.D, and further detailed in the Report.

Petitioners also retained Dr. Michael W. Klemens ("Klemens") to opine on the environmental impacts anticipated to result from the Project. Klemens is a conservation biologist with a PhD in ecology and more than 40 years of experience. (Exhibit 4, Affidavit of Michael W. Klemens ("Klemens Aff."), ¶ 4.) In his professional opinion, the Project is reasonably likely to cause unreasonable harm to the water quality, hydrological integrity, and the biodiversity of the Gulf Stream watershed, for the reasons explained further below in Part II.B. (Id., ¶ 7.)

C. Statutes and Regulations at Issue

This petition seeks a ruling that an individual permit, as opposed to a General Permit, should be required for the Project due to the unusual and highly complex nature of the Project. Pursuant to § 4-176(a), "[a]ny person may petition an agency . . . for a declaratory ruling as to the validity of any regulation, or the applicability to specified circumstances of a provision of the general statutes, a regulation, or a final decision on a matter within the jurisdiction of the agency." The requirements for a petition for a declaratory ruling to the Commissioner of DEEP are delineated in R.C.S.A. § 22a-3a-4.

Pursuant to § 22a-430b(c), the Commissioner, upon the issuance of a General Permit, is empowered to "require a person or municipality initiating, creating, originating or maintaining any discharge which is or may be authorized by a general permit to obtain an individual permit . . . if the commissioner determines that an individual permit would better protect the waters of the state from pollution." Subsection (c) further provides that "[a]ny interested person or municipality may petition the commissioner to take action under this subsection." Two circumstances included among the non-exhaustive list provided in § 22a-430b(c) are applicable here: "(5) when . . . a temporary or permanent reduction or elimination of the authorized discharge is necessary"; and "(6) when the discharge is a significant contributor of pollution, provided the commissioner, in making this determination, may consider the location of the

discharge with respect to waters of the state, the size of the discharge, the quantity and nature of the pollution discharged to waters of the state, cumulative impacts of discharges covered by the general permit and other relevant factors."

Furthermore, under R.C.S.A. § 22a-430-3(b)(6)(E), "The commissioner may, on request of any person or municipality or on his or her own initiative, require a person or municipality holding a general permit to apply for and obtain an individual permit."

For the reasons stated in the Klemens affidavit and the Trinkaus affidavit, Petitioners respectfully submit that the Applicant should be required to obtain an individual permit for the Project. The Project is vast complex, and environmentally disruptive; therefore, the General Permit process is inappropriate to address the risk associated with the Project.

D. Basis for Declaratory Ruling

Trinkaus has carefully reviewed the Project Plans and, based on them, opines that the General Permit process is inappropriate for a variety of reasons. More specifically, Trinkaus found a number of deficiencies with the Project Plans after his review, which he outlined in 117 separate paragraphs in the Report, incorporated herein. (See Trinkaus Aff., Ex. B.) Paragraphs 1 through 12 focus on deficiencies in the Applicant's drainage calculations. Among other errors, the Applicant mistakenly fails to treat solar panels as impervious, resulting in a significant underestimation of peak rates and volumes for runoff. As the storm basins are based on this data, the basins will fail, causing direct discharges to downgradient wetland and watercourse systems. Making matters worse, the Applicant has ignored the fact that the bottom of many of the stormwater basins are located below the seasonal high groundwater table, such that water will not be able to infiltrate into this saturated zone. The result will be more discharges.

The remaining 105 paragraphs in the Report focus on the many sheets of civil drawings,

noting their many deficiencies. The following are but a small sampling of the items with which

Trinkaus takes issue:

- The area for each phase of site disturbance has not been identified, despite the fact that, per the General Permit, site disturbance in each phase must be five acres or less and each disturbance area must be stabilized with permanent vegetative cover prior to disturbing the next phase. (Report, ¶ 13.)
- 60,640 cubic yards will be excavated on the site with 19,762 cubic yards to be filled. This results in a net cut of 40,878 cubic yards which must be removed from the site. Assuming 15 cubic yards per dump truck, it will take 2,752 round trips to get the material and remove from the site. The Applicant gives no explanation of the method by which this material will be removed from the Project Site. (Report, ¶ 14.)
- There is no plan explaining how compliance with the General Permit will be enforced. (Report, ¶¶ 15, 17.)
- The Applicant indicates that its contractor (who is not a professional engineer) would perform erosion inspections. (Report, ¶ 16.)
- Several outlets discharge at the top of very steep, greater than 15 percent slopes. The discharge will cause erosion of the steep slopes and eroded material will reach the downgradient wetland area. (Report, ¶¶ 19, 20, 25, 26, 29, 30.)
- Many check dams were missing, despite being required by the 2002 Guidelines for any swale when the slope of the swale is greater than 6 percent. (Report, ¶¶ 21, 22, 23, 31, 32.)
- One pond was missing an outlet entirely, meaning there is nowhere for the discharge to go. (Report, ¶ 24.)
- Sections of access roads with vertical grades greater than six percent should be paved, but this is not indicated. In addition, one large section (~500 feet in length) will have a grade of 16.85 percent, which is excessively steep. The Applicant provided no indication of how runoff would be handled. (Report, ¶¶ 33-37.)
- A few of the problems common to many of the ponds included in the Project Plans are as follows:
 - There was no indication of how sediment will be removed from the forebays. (Report, ¶¶ 38, 43, 49, 55, 60, 65, 71, 76, 82, 87, 93.)
 - The forebays are only one or two feet in depth despite the fact that the 2004 Manual requires a minimum depth of four feet. (Report, ¶¶ 40, 45, 51, 57, 67, 79, 89, 95.)
 - Emergency spillways are not lined with riprap of an appropriate diameter to ensure non-erosive velocities and do not extend down the face of the basin to an undisturbed soil surface. (Report, ¶¶ 41, 46, 52, 58, 63, 69, 74, 80, 85, 90, 96.)

- The basin design does not conform to any of the stormwater management practices found in the 2004 Manual. (Report, ¶¶ 42, 47, 53, 59, 64, 68, 75, 81, 86, 92, 97.)
- In certain instances, the wet swale design also does not conform to any of the stormwater management practices found in the 2004 Manual. (Report, ¶¶ 99, 101.)
- Siltation fence barriers and compost filter socks are shown perpendicular to contours in many locations. This is not in compliance with 2002 Guidelines. Erosion control measures must be installed parallel to contours with up-turned ends as needed. (Report, ¶ 102.)
- There is only one perimeter erosion control measure, which is not adequate to protect downgradient undisturbed areas from turbid runoff during the active construction period. The long and at times very steep slopes will be subject to rill and gully erosion, which will easily overwhelm the perimeter barriers. This occurred with the East Lyme and Waterford solar arrays. (Report, ¶ 102.)
- The construction sequence does not comply with the form and content required by the 2002 Guidelines. (Report, \P 103.)
- Almost all of the ditches will have flow velocities which are greater than 2.0 to 3.0 feet per second. With higher flow velocities, erosion of the ditches will occur. (Report, ¶ 108.)
- There are no computations for sizing of the temporary sediment basins per the 2002 Guidelines. (Report, ¶ 109.)
- The plan that shows each area to be disturbed at a given time is suspect. Simply being seeded does not constitute stabilization under the 2002 Guidelines. Grass cover must be established over a minimum of 75 percent of the disturbed area to be considered stabilized. It generally takes two growing seasons for broadcast seeding to become fully established on a site. In Trinkaus' professional opinion, the Applicant will not follow this requirement, thus resulting in more than five acres being disturbed and not stabilized at one time. This alone is reason enough to require an individual permit. (Report, ¶ 114.)
- The referenced gravel level spreader will not function as intended because the downhill edge consists of crushed stone against the soil. The placement of the stone will naturally create high and low spots against the soil interface which will cause concentrated flow to occur at multiple points along the level spreader. (Report, ¶ 115.)
- According to the Project Plans, gravel level spreaders are to be installed along contours at roughly 100' intervals. These so-called level spreaders (really gravel trenches) will be impossible to install dead level along a contour line and will not slow runoff or eliminate concentrated flow from the array. There will be high and low spots between the gravel and the native soil on the downhill side of the trench which will result in runoff finding the lowest point and discharging as concentrated flow at this point and not along the entire length of the gravel trench. In addition, runoff will simply flow right across the trench without slowing down because the surface will

provide minimal, if any, resistance to the runoff due to the small stone size. (Report, \P 117.)

As previously noted, Klemens determined that the Project is reasonably likely to cause unreasonable harm to the water quality, hydrological integrity, and the biodiversity of the Gulf Stream watershed. (Klemens Aff., \P 7.). He does not mince words about this threat in his affidavit, instead stating: "I strongly urge the DEEP to examine the Project from an ecological perspective and to deny it the necessary permits to continue its development. The Project will cause unreasonable harm to the environment based on its location with regard to the watershed, and its ecological and hydrological complexity." (<u>Id.</u>, ¶ 15.)

Klemens' review focused on the Project Site's vernal pools, seepages and tributary streams, all of which share an ecological nexus.³ (Id., ¶ 19.) The Project as intended would severely impact the vernal pools, as well as the entire network of seepages and streams, which are of high quality and high conservation value, as indicated by the presence of dusky salamanders and other aquatic parameters. (Id., ¶ 10-11.) Cold, high quality, seepage-fed streams and headwaters are a critical hydrological resource in Connecticut. (Id., ¶ 12.) In this period of climatic change, ground water fed wetlands ameliorate the effects of both drought and the warming of surface waters, thereby serving as a refuge for cold water aquatic species. (Id.)

Klemens' investigation extended beyond the Project Site because, in general, the ecological footprint of a solar farm is many orders of magnitude greater than its built footprint; in other words, the area of environmental impact of the Project is far greater than its developed land area. (Id., \P 13.) This is particularly relevant in this case, because the degradation of water

³ Klemens' experience working downstream on three separate projects has led him to conclude that the Project is part of a network of breakouts, seepages, and streams that are connected by a large amount of subterranean water flow. Not only are these breakouts and seepages hydrologically connected, it is quite plausible that biota such as dusky salamanders and various invertebrates are moving underground between these areas. (Klemens Aff., ¶ 14.)

resources caused by the Project will affect a significant part of the downstream Gulf Stream drainage. (Id.)

The Project presents enough unusual circumstances that requiring an individual permit process is appropriate. That is so because such a process is necessary to allow for a more extensive review of the Project Plans by DEEP, Petitioners, and other interested persons. General permits were developed "to facilitate the permitting of minor activities in its major permit programs."⁴ In contrast, an individual permit is appropriate where a project's activities "may have a significant impact on the state's air, water or land."⁵ Even where a general permit may cover a particular activity, the Commissioner may require an individual permit if the project at issue "raises concerns that it may or will in fact cause pollution[.]" Opinion No. 86-25, 1986 Conn. Op. Att'y Gen. 94 (1986), 1986 WL 289108. Not only is the scale of the Project immense, so too are the adverse environmental impacts that will result should the Project Plans be carried out, for the reasons explained by both Trinkaus and Klemens.

Given the characteristics of the Project and the likelihood of its adverse environmental impacts, Petitioners respectfully submit that an individual permit is necessary to properly protect the waters of the state. That process will also provide more public review, which is especially significant under these circumstances given the scale of the Project and the likelihood for largescale environmental disruption.

Furthermore, Petitioners respectfully request that the Commissioner hold a hearing on this petition, due to the scale of the Project and the likely adverse impacts it will have on state waters, ecosystems, and the environment more generally. Petitioners make this request pursuant

⁴ Explanation of general permits available at <u>https://portal.ct.gov/DEEP/Permits-and-</u> Licenses/Where-to-Begin--Users-Guide-to-Environmental-Permits.

⁵ Explanation of individual permits available at <u>https://portal.ct.gov/DEEP/Permits-and-Licenses/Permitting-Process-Overview/Application-Process-Individual-Permits.</u>

to R.C.S.A. § 22a-3a-4(c)(4). Petitioners submit that a hearing is necessary and appropriate to allow interested persons sufficient opportunity to participate in this process and to ensure the completeness and transparency of DEEP's review.

Finally, as required under R.C.S.A. § 22a-3a-4(a)(3), this petition is accompanied by an affidavit averring that Petitioners have given notice of the substance of the petition, and of the opportunity to file comments and to request intervenor or party status under (c)(1) of that section, to all persons known by Petitioners to have an interest in the subject matter of the petition. A copy of that affidavit is attached hereto as Exhibit 5.

II. INTERVENOR/PARTY STATUS UNDER CONN. GEN. STAT. § 22a-19

Section 22a-19 permits any person to intervene as a party in any administrative, licensing, or other proceeding "on the filing of a verified pleading asserting that the proceeding . . . is reasonably likely to have, the effect of unreasonably polluting or destroying the public trust in the air, water or other natural resources of the state." Petitioners seek such status pursuant to § 22a-19(a) as to the proceedings for the requested declaratory ruling set forth in Part I and, to the extent they are permitted to continue, the Project's ongoing General Permit proceedings.⁶

A. Manner in Which Petitioners Will Be Specifically Affected

As aforementioned, Petitioners have a direct interest in the proceedings related to the Project because they own and reside at real property that directly abuts the Project Site. (Ranald Nicholas Aff., ¶¶ 3-4; Robin Nicholas Aff., ¶¶ 3-4.) Petitioners viewed a variety of birds and wildlife including monarch butterflies, deer, bears, coyotes, foxes, opossum, raccoon, bobcats, songbirds, turkeys, vultures, and hawks on their property and the nearby portions of the Project Site. (Ranald Nicholas Aff., ¶ 6; Robin Nicholas Aff., ¶ 6.) Petitioners are concerned with the

⁶ The facts alleged and referred to herein are verified by Petitioners in the two pages following the signature block of their counsel.

Project's impact on the environment, especially with respect to stormwater issues, the protection of local wetlands and watercourses, and the protection of wildlife and other natural resources. For approximately 20 years, they have expended time, money, and resources in protecting their property against erosion, which has been caused by excessive water flow running from the Project Site, in particular using rocks to slow runoff from the Project Site. (Ranald Nicholas Aff., ¶ 7; Robin Nicholas Aff., ¶ 7.) Petitioners are deeply concerned that any additional runoff from the Project Site will not only cause unreasonable harm to their property, but also to the wildlife living in the area, as it will lead to an increase in flooding, sedimentation, and erosion. (Ranald Nicholas Aff., ¶¶ 8-9; Robin Nicholas Aff., ¶¶ 8-9.)

As discussed in Part I of this petition, Petitioners' concerns have been deemed valid by two experts who have determined that the Project Plans do not adequately deal with stormwater issues, such that the Project, if constructed, will negatively impact undisturbed wetlands and two high-value vernal pools, as well as the water quality of the Gulf Stream. The Applicant's failure to develop an adequate SWPCP to deal with stormwater discharge will not only adversely affect those watercourses, it will consequentially lead to increased erosion and sedimentation to the Project site and surrounding properties, including the property owned by Petitioners. Environmental abuse of natural resources down gradient has already caused that land to absorb less water, causing flooding running south into the massive wetland complex, saturating substantial portions of land and causing flooding. The Project will exacerbate these issues.

B. Contentions of Petitioners

The Project Plans are wholly inadequate—they fail to provide assurances that the Project will not cause erosion and sedimentation. As already detailed in Part I of this petition, the Trinkaus Affidavit demonstrates that the Project Plans are deficient in a wide range of ways. The Trinkaus Affidavit is hereby incorporated into this request for party status in full, but to

summarize it very briefly, the significant grading and steep slopes proposed for the Project Site, the clearing of 70 acres of land, and the installation of the photovoltaic modules will dramatically change the nature of that habitat and the degree to which stormwater will leave the Project Site. The creation of so many impervious surfaces will increase the amount of, and flow rate of, runoff significantly, and the proposed orientation of the panels will cause runoff to run parallel to the panels, thus channelizing the flow.

As a result, the Project will negatively impact undisturbed wetlands and two high-value vernal pools, as well as the water quality of the Gulf Stream, the details of which are explained in the Klemens Affidavit. Klemens' analysis is outlined above in Part I.D, and – for the avoidance of repetition – is incorporated in full by reference here.

If permitted, Petitioners intend to present the expert testimony of Trinkaus and Klemens, which would be in line with the affidavits provided herewith.

C. Relief Sought By Petitioners

Petitioners seek party status under § 22a-19 to introduce expert testimony and other evidence already summarized. This evidence establishes that the Project Plans fail to demonstrate that the Applicant has designed a method that will adequately and effectively control runoff, sediment, and erosion of the Project Site. Should the Project move forward as planned, it will jeopardize on-site and off-site wetlands, vernal pools, and other water resources. Based on this evidence, Petitioners request that the Applicant's application for a General Permit be refused.

D. Statutory or Other Authority Therefore

The Connecticut Environmental Protection Act of 1971 permits any person "to intervene as a party upon the filing of a verified pleading asserting that the proceeding or action for judicial review involves conduct which has, or which is reasonably likely to have, the effect of

unreasonably polluting, impairing or destroying the public trust in the air, water or other natural resources of the state." § 22a-19(a); <u>see also</u> § 22a-20 (providing, <u>inter alia</u>, any person entitled to maintain action under § 22a-19 to intervene as party in all delineated procedures). For purposes of § 22a-19, all that is required of Petitioners is that they "articulate a colorable claim of unreasonable pollution, impairment or destruction of the environment." <u>Finley v. Inland</u> <u>Wetlands Comm'n of Town of Orange</u>, 289 Conn. 12, 35 (2008) (internal quotation marks omitted). Indeed, § 22a-19 grants standing to any intervening person to raise environmental concerns "that are within the jurisdiction of the particular administrative agency conducting the proceeding into which the party seeks to intervene." <u>Nizzardo v. State Traffic Comm'n</u>, 259 Conn. 131, 148 (2002).

As set forth above, the Project will unreasonably pollute, impair and destroy the environment in and around the Project Site. That is all that is required to intervene as a party, and the adverse environmental impact of the Project is within the jurisdiction of DEEP because the proceeding relates to the Applicant's application for a General Permit, with the receipt of such a permit dependent upon submitting plans that are compliant with environmental standards and that alleviate any potential adverse environmental impacts. Petitioners have alleged that the Project under the current Project Plans will unreasonably impair the public trust in natural resources, including waterways and natural habitats, and have outlined the evidence that they intend to present in support of their allegations. As such, Petitioners have made sufficient allegations to obtain intervenor status under § 22a-19. See Red Hill Coalition, Inc. v. Town Planning & Zoning Comm'n, 212 Conn. 727, 734 (1989) ("[§] 22a-19[a] makes intervention a matter of right once a verified pleading is filed complying with the statute, whether or not those allegations ultimately prove to be unfounded").

For these reasons, Petitioners' application to intervene as a party should be granted so

that they may participate by presenting evidence and otherwise meaningfully assist the

Commissioner in reaching a decision that minimizes the impact to the natural resources of the

state, which the current Project Plans fail to do.

III. CONCLUSION

For the foregoing reasons, Petitioners respectfully request the Commissioner to issue a declaratory ruling as stated in Part I of this petition, and to grant Petitioners' request for party status under § 22a-19 as stated in Part II of this petition.

PETITIONERS RANALD K. NICHOLAS and ROBIN L. NICHOLAS

By: Mary M. Willer

Mary Mintel Miller Jeffrey N. Kaplan Reid and Riege, P.C. Juris No. 049362 One Financial Plaza, 21st Floor Hartford, CT 06103 T: 860-240-1059 F: 860-240-1002 mmiller@rrlawpc.com jkaplan@rrlawpc.com

VERIFICATION

I, Robin L. Nicholas, being duly sworn, depose and say that I have read the foregoing Petition for Declaratory Ruling and Request for Party Status or Notice of Intervention, and that the allegations contained therein are true to the best of my knowledge.

By:

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ROBIN L. NICHOLAS

Subscribed and sworn to before me this 17th day of February, 2023_A

Notary Public / Commissioner of the Superior Court My Commission Expires: 05-31-2025

Hajaj Odimeh Notary Public, State of Connecticut My Commission Expires 05/31/2025

VERIFICATION

I, Ranald K. Nicholas, being duly sworn, depose and say that I have read the foregoing Petition for Declaratory Ruling and Request for Party Status or Notice of Intervention, and that the allegations contained therein are true to the best of my knowledge.

By:

RANALD K. NICHOLAS

Subscribed and sworn to before me this 17th day of February, 2023.

Notary Public / Commissioner of the Superior Court

My Commission Expires: 05-31-2025

Hajaj Odimeh Notary Public, State of Connecticut My-Commission Expires 05/31/2025

EXHIBIT 1

STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL AND ENERGY PROTECTION

IN THE MATTER OF:

APPLICATION NO.: 202207386

SR LITCHFIELD, LLC SR Litchfield Site Town Farm Road, Torrington, CT

FEBRUARY **[**], 2023

AFFIDAVIT OF RANALD K. NICHOLAS

The undersigned being duly sworn does hereby depose and say:

1. I am over the age of eighteen, understand the meaning and obligation of an oath, and am competent to testify as to the matters stated herein.

2. I make this Affidavit on personal knowledge.

3. I, together with my spouse, Robin L. Nicholas, own and reside at real property located at 389 Wimbledon Gate North, Torrington, Connecticut, which is located off of Highland Avenue (the "Property").

4. The backyard of the Property directly abuts one of the parcels of real property to be used by SR Litchfield, LLC ("SR Litchfield") for its proposed project consisting of the construction of more than 55,0000 photovoltaic modules in an area spanning more than 70 acres within a 212-acre site that crosses two municipalities (the "Project Site"), and which is the subject of the above-referenced matter (collectively, the "Project").

5. The Project Site is approximately 60 feet from the Property line, and under the plans submitted by SR Litchfield to the Department of Energy and Environmental Protection ("DEEP") to obtain a stormwater discharge permit, I will have year-round views of the facility located on the Project Site.

6. The Property and the nearby portions of the Project Site is surrounded farmland and forestland where I have viewed a variety of birds and wildlife including monarch butterflies, deer, bears, coyotes, foxes, opossum, raccoon, bobcats, songbirds, turkeys, vultures, and hawks, all of whose presence has been part of my quiet enjoyment of the Property.

7. For approximately 20 years, my spouse and I have expended time, money, and resources in protecting the Property against erosion, which has been caused by excessive water flow running from the Project Site, in particular using rocks to slow runoff from the Project Site.

8. Any additional runoff from the Project Site will cause unreasonable harm to the Property, including flooding, sedimentation, and erosion.

9. I am deeply concerned that the Project will cause unreasonable harm to the environment, including adversely affecting wildlife that live in the area and increased flooding, sedimentation, and erosion of the Property.

Ranald K. Nicholas

Subscribed and sworn to before me this 1/2 day of February, 2023.

Commissioner of the Superior Court / Notary Public

My commission expires: 05-31-2025

Hajaj Odimeh Notary Public, State of Connecticut My-Commission Expires 05/31/2025

EXHIBIT 2

STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL AND ENERGY PROTECTION

IN THE MATTER OF:

APPLICATION NO.: 202207386

SR LITCHFIELD, LLC SR Litchfield Site Town Farm Road, Torrington, CT

FEBRUARY <u>17</u>, 2023

AFFIDAVIT OF ROBIN L. NICHOLAS

The undersigned being duly sworn does hereby depose and say:

1. I am over the age of eighteen, understand the meaning and obligation of an oath, and am competent to testify as to the matters stated herein.

2. I make this Affidavit on personal knowledge.

3. I, together with my spouse, Ranald K. Nicholas, own and reside at real property located at 389 Wimbledon Gate North, Torrington, Connecticut, which is located off of Highland Avenue (the "Property").

4. The backyard of the Property directly abuts one of the parcels of real property to be used by SR Litchfield, LLC ("SR Litchfield") in its proposed project consisting of the construction of over 55,0000 photovoltaic modules in an area spanning over 70 acres within a 212-acre site that crosses two municipalities (the "Project Site"), and which is the subject of the above-referenced matter (collectively, the "Project").

5. The Project Site is approximately 60 feet from the Property line, and under the plans submitted by SR Litchfield to the Department of Energy and Environmental Protection ("DEEP") to obtain a stormwater discharge permit, I will have year-round views of the facility located on the Project Site.

6. The Property and the nearby portions of the Project Site is surrounded farmland and forestland where I have viewed a variety of birds and wildlife including monarch butterflies, deer, bears, coyotes, foxes, opossum, raccoon, bobcats, songbirds, turkeys, vultures, and hawks, all of whose presence has been part of my quiet enjoyment of the Property.

7. For approximately 20 years, my spouse and I have expended time, money, and resources in protecting the Property against erosion, which has been caused by excessive water flow running from the Project Site, in particular using rocks to slow runoff from the Project Site.

8. Any additional runoff from the Project Site will cause unreasonable harm to the Property, including flooding, sedimentation, and erosion.

9. I am deeply concerned that the Project will cause unreasonable harm to the environment, including adversely affecting wildlife that live in the area and increased flooding, sedimentation, and erosion of the Property.

Robin L. Nicholas

Subscribed and sworn to before me this 1 day of February, 2023.

Commissioner of the Superior Court / Notary Public My commission expires: 05-3\-2025

Hajaj Odimeh Notary Public, State of Connecticut My Commission Expires 05/31/2025

EXHIBIT 3

STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL AND ENERGY PROTECTION

IN THE MATTER OF:

APPLICATION NO.: 202207386

SR LITCHFIELD, LLC SR Litchfield Site Town Farm Road, Torrington, CT

FEBRUARY 14, 2023

AFFIDAVIT OF STEVEN D. TRINKAUS, PE

The undersigned being duly sworn does hereby depose and say:

- 1. I am over the age of eighteen, understand the meaning and obligation of an oath, and am competent to testify as to the matters stated herein.
 - 2. I make this Affidavit on personal knowledge.
 - 3. My name is Steven D. Trinkaus, owner of Trinkaus Engineering, LLC.
- 4. I am a professional engineer licensed in Connecticut since 1988. During my employment with John W. Fuller, PELS (from January 1981 through December 1987), I performed land surveys and designed roads, grading plans, erosion control plans and on-site sewage disposal systems. I spent the next two years with Groundworks, Inc., where I focused on design, rather than surveying. Design continued to remain my focus when I became self-employed as the principal of Trinkaus Engineering, LLC in 1990. I have also become an expert in the field of Low Impact Development, which focuses on water quality and volume of runoff from development projects. I have appeared in Superior Court in Danbury, Stamford, and New London as an expert witness in land use cases. My experience qualifies me to provide an opinion on the above-referenced project (the "Project") and is further detailed in my CV, which is attached as Exhibit A and incorporated in full into this affidavit.
 - 5. At the request of the petitioners in the above-captioned proceeding, I have

reviewed the plans and technical documents related to the Project submitted to the Connecticut Department of Energy & Environmental Protection ("CTDEEP") in support of the application for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ("SWGP") filed by SR Litchfield, LLC (the "Applicant") – Application No. 202207386 (the "Application").

6. Prior to my review of the plans and technical documents supporting the Application, I became familiar with the Project by reviewing plans submitted by the Applicant to the Connecticut Siting Council (see CSC Petition 1442). Based on my review of those plans, I expected to see an application for an individual permit to discharge as the Project is a large solar generation facility being installed on sloped ground. An individual permit would allow for a more comprehensive review, which would better protect the waters of Connecticut.

7. I reviewed the following documents:

a. Contract Drawing for Silicon Ranch Corporation – Litchfield Solar – Site
 Civil Design by HDR (revised to 12/1/22);

b. Drainage Calculations – Litchfield Civil Design – Silicon Ranch
 Corporation (revised to 12/1/22);

c. CT DEP 2002 Guidelines for Soil Erosion and Sediment Control ("2002 Guidelines"); and

d. CT DEP 2004 Storm Water Quality Manual ("2004 Manual").

8. My analysis of those documents is contained in a report that I sent to counsel for the Petitioners on January 29, 2023, which is attached as Exhibit B and incorporated in full into this affidavit (the "Report").

9. To briefly summarize the Report:

a. The Applicant's analysis and design of all stormwater management systems are not in compliance with the 2004 Manual.

b. The Applicant's stormwater management analysis for post-development conditions is significantly under-estimating the peak rate and runoff volume as the solar panels are not being considered impervious.

c. The Applicant's erosion control plan is not in compliance with the 2002
 Guidelines and will not protect the downgradient upland and/or delineated
 wetland areas.

d. The Project is not suitable for coverage under the SWGP in my professional opinion for the many reasons set forth in the Report.

e. Based upon my experience with other solar arrays (both as a designer and reviewer), contractors working on large ground mounted solar arrays do not follow the requirements of the SWGP. For example, it is highly likely that the contractors will disturb more than five acres at one time (the limit under the SWGP).

10. In conclusion, I strongly urge the CT DEEP to determine that the Project does not meet the criteria for a SWGP and instead require an individual permit.

iular Steven D. Trinkaus

Subscribed and sworn to before me this <u>11</u> day of February, 2023.

Commissioner of the Superior Court / Notary Public My commission expires: $\Lambda_{-4} = 31, \ 2 \approx 23$

JAMES E SMITH NOTARY PUBLIC CONNECTICUT MY COMMISSION EXPIRES AUGUST 31, 2023

Exhibit A to Affidavit of Steven D. Trinkaus, PE

Steven D. Trinkaus, PE Trinkaus Engineering, LLC 114 Hunters Ridge Road Southbury, Connecticut 06488 Phone: +1-203-264-4558 (office), 203-525-5153 (mobile) Website: <u>http://www.trinkausengineering.com</u> Email: <u>strinkaus@earthlink.net</u> Alternative Email: Trinkaus.korea.lid@gmail.com

Qualifications	B.S. / Forest Management/1980 University of New Hampshire
Licenses/Certifications	Licensed Professional Engineer- Connecticut (1988)
Professional Societies	American Society of Civil Engineers Connecticut Society of Professional Engineers International Erosion Control Association
Professional Awards	Steve was named an Industry Icon by Storm Water Solutions in July 2015 <u>http://editiondigital.net/publication/?i=263831&p=16</u> for his work in the Low Impact Development field.

International Experience

South Korea – July 2017, June 2016, April 2015, October 2014, April 2014, October 2013 and June 2013

- Steve was invited by Dr. Leeyoung Kim of Kongju University to make a presentation at the Seoul International Symposium for water cycle held on July 27, 2017 at Seoul City Hall. Steve's presentation was entitled "Sustainable Urban Water Cycle Management, Low Impact Development Strategies for Urban Retrofits". Steve also made a presentation to Master and PhD Engineering students at Kongju University on designing LID treatment systems. He also visited the research office of Land & Housing Institute in Daejeon to inspect recent LID retrofits consisting of Bioretention systems, Bioswales and Permeable Paver systems.
- Steve was invited by Dr. Shin to visit the Korean GI/LID research center in July of 2017. The purpose of the visit was to inspect the LID research systems which had been in place for a year to observe how well they were functioning and also to observe the current research on infiltration of LID systems and evaportranspiration of green roof systems.
- Steve was an invited attendee to the official opening of the Korean GI & LID Research Center recently constructed at the Yangsam Campus of Pusan National University. Steve was a consultant on the design of the research center for Dr. Hyunsuk Shin of Pusan National University.
- Steve was an invited presenter at the World Water Forum by Dr. Hyunsuk Shin of Pusan National University. He presented case studies of GI/LID applications in the United States.

- Steve was invited by Dr. Yong Deok Cho of Kwater to participate in the Water Business Forum at the World Water Forum. Steve presented an overview of his business and expertise in Low Impact Development.
- Steve was invited by Dr. Hong-Ro Lee of Kunsan National University and made a presentation entitled "Understanding Low Impact Development in the Urban-Rural Interface" for the **Ariul Brainstorming Working Group** on April 16, 2015 in Gunsan, South Korea. He also toured portions of the proposed land reclamation area to assess how Low Impact Development strategies could be incorporated to address water quality issues from the proposed agricultural, residential, commercial and industrial land uses for this area.
- Steve was a Contributing Author as well as an Advisory Reviewer for a report prepared by Land & Housing Institute (LHI) entitled "Pyeongtaek Godeok New City Low Impact Development techniques (LID), A study on the introduction of measures (I) " dated: January 2015. This report by LHI also cited the Town of Tolland LID Design Manual as a foreign LID Manual to be used as a reference document.
- Steve was an invited presenter at the International Water Forum 2014 held in conjunction with the Nakong River International Water Week in Gyeongju, South Korea sponsored by DaeGyeong Water Foundation & the International Hydrologic Environmental Society. His presentation focused on urban stormwater and the benefits of LID in these areas.
- Steve was an invited presenter at the IWA Water Reuse & Energy Conference 2014 held in Daegu, South Korea. His presentation was on the regulatory barriers to implementation of LID and how to overcome these barriers. He also participated in a panel discussion with other presenters.
- He also made a presentation at The 1st GI & LID Technical Education Workshop held at Pusan National University on October 22nd on an overview of LID and the application of LID concepts. He was invited by Dr. Kyung Hak Hyun of Land & Housing Institute (LHI) to make two presentations of LID case studies at Sangyung University and at a seminar hosted at LHI along with Kwater.
- Steve met with Jong-Pyo Park, Director and Kyoung-Do Lee, CEO of HECOREA, a water resource consulting firm to discuss LID in dense urban areas. Steve signed a MOU with HECOREA to provide consulting services on LID monitoring approaches and maintenance protocols for the Go-Deok International Planning District near Pyeongtaek, South Korea.
- Steve was invited by Dr. Kyung Hak Hyun of Land & Housing Institute to present at the 2nd Low Impact Development Forum in Daejeon, South Korea on October 31, 2013. He also inspected the site of Asan-tangjeong which is an expansion of residential housing for the city of Asan. This expansion will incorporate LID stormwater strategies.
- Steve was invited to make a presentation of the implementation of LID on commercial sites by Dr. Reeho Kim of the Korea Institute of Construction Technology in Seoul.
- Steve met with Dr. Sangjin Lee of Korean Water and Dr. Woo Young Heo, CEO of LID Solution Co, Ltd to review the initial concept plans for the Eco-Delta City project. Eco-Delta City is a new city located near the Gimhae International Airport of 13 square kilometers and will incorporate LID concepts throughout the new city.
- Steve signed a MOU with Dr. Shin of Pusan National University to provide consulting services for the Smart GI/LID Research Facility at Pusan National University. Steve was asked by Dr. Shin to review the design plans for the GI/LID research facility to be

constructed at Pusan National University with a focus on the exterior LID research facilities. He provided a written comprehensive review for consideration by PNU.

• Steve was invited by Dr. Hyunsuk Shin of Pusan National University in South Korea to present a workshop on Low Impact Development on June 24, 2013. The presentation was made to research professors, graduate engineering students and practicing engineers at K-water headquarters in Daejeon, South Korea. He also met with representatives of other agencies tasked with the development of a new city, called Eco-Delta City which will implement LID practices from the ground up and comprises approximately 3,500 acres.

Nanjing, China, September 2018

Steve was invited by the organizing committee for the third China Sponge City International Exchange Conference to make three presentations on LID. The presentations were entitled: "LID: The Good, the Bad and the Ugly", "Permeable Pavement Case Studies" and "The regulatory framework to adopt LID". The conference was held September 27th and 28th in Nanjing, China.

Beijing/Zhenjiang, China – August 2017

Steve was invited to make a presentation entitled "Urban LID in China and South Korea" at the 2017 Second China Sponge City International Exchange Conference held in Beijing on August 16-1, 2017. He also made a presentation for Dr. Nian She, Director of Smart Sponge City Planning and Construction Research Institute in Zhenjiang, China on modeling approaches for LID treatment systems as well as inspecting some recent LID retrofits currently under construction in Zhenjiang.

Steve also made a presentation at Reschand entitled "LID Case Studies from US" at the request of Yuming Su of Reschand.

Nanjing, China – September 2016

Steve was invited to present at the 2016 First China Sponge City International Exchange Conference held in Nanjing, China. The presentation focused on several case studies of LID systems in the US.

Zhenjiang, China – June 2015

Was retained by Dr. Nian She to design Urban LID retrofits for a 2.5 hectare (6.5 acres) dense residential area in the city of Zhenjiang. The LID retrofits had to fully treat runoff from the existing impervious areas (building roofs, driveways and parking areas) for 65 mm (2.6") of rainfall in 24 hours. The LID systems also had to attenuate the peak rate of runoff for a rainfall event of 150 mm (5.9") rainfall event. A combination of Bioretention systems, and permeable pavers with a filter course and reservoir layer were used to meet these stormwater requirements.

Zhenjiang, China – May 2015

Steve was invited by Professor Nian She of Shenzhen University to make a presentation entitled "Using LID to Attenuate Large Rainfall Events and Reduce Flood Potential" at the 2015 First Sino US Sponge City LID Technology Practice Conference held on May 4-5, 2015 in Zhenjiang, China organized by Zhenjiang Water Supply and Drainage Management Office. (http://www.c-water.com.cn/2015lid/en/index_e.html). In addition to the presentation, field inspections were

made of several new LID installations in the city consisting of Bioswales, permeable pavement systems and rainwater harvesting.

Guangzhou, China – December 2012

- Steve was an invited attendee at the 15th Annual Guangzhou Convention of Chinese Scholars in Science and Technology in Guangzhou, China on December 17 – 21, 2012 to present a project narrative on how Low Impact Development and sustainable development can be applied to address water quality issues in urban and rural areas of China to implement sustainability concepts and conservation of resources. He attended with Dr. Jim Su, PE of Golder Associates of Mt. Laurel, New Jersey. While at the convention he met with representatives from Sichuan University, Chang'an University, Guangdong University of Technology, Shenzhen University and the South China Institute of Environmental Sciences, MEP to discuss LID being incorporated into their engineering programs.
- Steve also met Dr. Hongbin Cheng of New China Times Technology which is located in Stellenbosch, South Africa. Steve has signed a three year partnership agreement with New China Times Technology to introduce LID concepts to the west cape area of South Africa.

Taiwan – December 2011

- Steve was invited by Hung Kwai Chen, Director of the Water Resources Planning Institute, Water Resource Agency, Ministry of Economic Affairs of Taiwan and Dr. Yong Lai of the US Bureau of Reclamation to present a 12-hour presentation on Low Impact Development on December 8th and 9th, 2011 in Taichung, Taiwan. The presentation focused on applying LID strategies in both urban and rural environments to address runoff volumes and water quality issues.
- Steve is an invited consultant to a project team headed up by Xiaoyan Zhou, PhD of the Institute for Taiwan Water Environment Research (TIIWE) along with The National Taiwan Ocean University, Hohai Engineering Professor Liao Chaoxuan, Ting Engineering Consultants Co., Ltd and University of Colorado professor Guo Chunyuan to develop a LID demonstration project in New Taipei City along with LID policy strategies to further the use of LID in New Taipei City, Taiwan.

Low Impact Development

- Review of existing municipal land use regulations to identify barriers to the implementation of Low Impact Development
- Preparation of regulatory language changes to facilitate the adoption of Low Impact Development
- Preparation of design manuals for the implementation of Low Impact Development strategies and processes with an approach that simplifies the design process
- Application of environmental site design strategies to focus development concepts on land most suitable for development while enhancing the protection of environmentally sensitive areas

- Design of Low Impact Development treatment systems, such as Bioretention areas, wet/dry swales, vegetated level spreaders, vegetated filter strips, subsurface gravel wetlands, constructed wetlands and/or pond systems, infiltration basins & trenches
- Hydrologic analyses of current and post-development conditions to assess impacts of proposed development on storm water flows
- Design of storm water control systems including detention and water quality basins and appropriate planting plans
- Perform hydrologic modeling of stormwater management systems to demonstrate compliance with regulatory benchmarks
- Prepare Pollutant loadings analyses to evaluate the effectiveness of stormwater treatment designs in reducing pollutant loads

Wastewater Management:

- Soil testing to determine suitability of land to support on-site sewage disposal systems for residential and commercial projects and assistance with identifying optimal location for both small and large scale system
- Perform necessary calculations to model and design large scale subsurface sewage disposal systems under CT DEEP criteria and State Department of Public Health
- Design of on-site sewage disposal systems in accordance with state and local health codes
- Perform construction oversight of both small and large scale subsurface sewage disposal systems and provide certifications of compliance

Site Engineering:

- Development feasibility studies
- Layout concepts to maximize development, while preserving environmentally sensitive areas
- Design of horizontal and vertical road geometry
- Preparation of grading, drainage and erosion and sedimentation control plans
- Use AutoCAD Land Development, Civil3D, HydroCAD and Pondpack software packages
- Layout and design of sanitary sewers
- Bid estimates
- Construction oversight
- Third party technical reviews

• Expert testimony

Professional Committees

- Chairman and primary author of EWRI/ASCE LID Model Ordinance Task Committee (goal is to create a National LID Guidance document to further the adoption of LID)
- Chairman of EWRI/ASCE LID Task Committee on Filter Strips and Bioswales (goal is to review & evaluate literature and design specifications for filter strips and Bioswales and create uniform design standards for different geographical regions)
- Member of EWRI/ASCE LID National Guidelines Task Committee

Published Articles

- **"Easier Said Than Done Overcoming common errors when installing bioretention systems"** October 2018 edition of Storm Water Solutions by Scranton Gillette Communications.
- "Large-scale LID Design for urban expansion in South Korea" with co-author, Dr. Kyung Hak Hyun of South Korean Land and Housing Institute – Volume 3/Issue 4, August/September 2015 – Worldwater Stormwater Management by the Water Environmental Federation.
- "Research team leads LID deployment in South Korea" Volume 2/Issue 1, Spring 2014 Worldwater Stormwater Management by the Water Environmental Federation.
- "Low Impact Development, Sustainable Stormwater Management" English article converted to Chinese and published in the Chinese Edition of Global Water Magazine, July 2013.
- "A Case Study: Southbury Medical Facility and Low Impact Development" January/February 2014 issue of Land and Water.
- "A True Pioneer of Low Impact Development Member Spotlight" January/February 2014 Issue of Erosion Control – Official Journal of the International Erosion Control Association.
- "Low Impact Development: Changing the Paradigm" published in the March 2012 edition of PE, The Magazine for Professional Engineers by the National Society of Professional Engineers. Article was also republished in the Spring 2012 addition of EWRI Currents (with permission of NSPE).
- "Stormwater Retrofit of Existing Detention Basins" published in the March/April 2012 Land and Water, The Magazine of Natural Resource Management and Restoration with co-author Sean Hayden of the Northwest Conservation District.
- "Out in the Open; Creating a Stormwater Park in the Heart of a Community" published in the April 2013 issue of WaterWorld by Pennwell Corporation.
- "Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut" published in the July/August 2013 edition of Land and Water

Volunteer Organizations

- President (elected 11/2013) and Connecticut Representative to the Board of Directors for the Northeast Chapter of IECA,
- Alternate member of Inland Wetlands Commission Town of Southbury (served three years),
- Northwest Conservation District Board of Directors (served 18 months)

Software Development

Developed a proprietary software application called Assessment of Pollutant Loads and Evaluation of Treatment Systems (A.P.L.E.T.S.). This application calculates the pollutant loads for current and future land use conditions for the seven most common pollutants in non-point source runoff (TSS, TP, TN, Zn, Cu, TPH, & DIN) for a total of twenty-two different types of land uses. The application then allows the evaluation of the effectiveness of thirty-four Conventional and Low Impact Development treatment systems in removing these pollutants. Up to four treatment systems can be used in a row as a treatment train to achieve water quality goals.

Future Presentations

- Steve will be presenting a two-hour webinar entitled "Bioretention System Design" on Wednesday, November 2, 2022 at 1:00 pm CST, sponsored by Halfmoon Seminars. Link: <u>https://halfmoonseminars.org/product/webinars/biorentention-system-design-2/?variation=142422</u>
- Steve will be making a presentation entitled "Stormwater Management for Ground Mounted Solar Arrays in the Real World". The presentation will be made on Tuesday, February 7, 2023, at 10:30 to 11:00 am CST in Room 2203 at the 2023 IECA Annual Conference.

Invited Speaker Presentations:

- Steve made a presentation entitled "Making Rainfall Disappear using Bioretention and Permeable Pavement" for a webinar entitled "Groundwater: Making the Invisible Visible" sponsored by the Philippine-American Academy of Science and Engineering (PAASE) on March 11, 2002 at 8 am (Philippine Time) <u>https://paase.org/?fbclid=IwAR1KNhxJ69qpo1COxxCT4omfefLysKCfLDN9cw-Ygizs2DtLiJMfO-Nk8Pg</u>
- Steve made a two-hour presentation via zoom on November 22, 2021, for the Green Infrastructure & Low Impact Development Specialized Graduate School at **Pusan National University** at the request of Dr. Hyun Suk Shin. The topics presented were "Why we need LID" and "Bioretention systems and the design".
- Steve made two presentations at the IWA Dipcon 2019; The 19th IWA International Conference on Diffuse Pollution and Eutrophication being held in Jeju, South Korea in October 2019. The presentations were entitled "How Low Impact Development strategies can mitigate high intensity rainfall events" and "If LID is so easy to implement, how come we keep getting it wrong". (http://iwadipcon2019.org/dipcon/about.asp)
- Steve made the following presentations at **St. Andrews University in Scotland** on October 19th, 2017 for the Sustainable Development program. The first presentation is entitled "Improving the environment with Low Impact Sustainable Development Strategies". The second presentation is entitled "Addressing Water Quality and Runoff Issues in a changing weather world".
- Steve was invited by Dr. Jae Ryu of the University of Idaho Water Center to make a presentation entitled "Designing Low Impact Development treatment systems for **Urban & Agricultural Environments**" at the Annual US-Korea Conference on Science, Technology, and

Entrepreneurship being held in Atlanta, Georgia on July 29 to August 1, 2015. (<u>http://www.ukc.ksea.org/UKC2015/</u>)

- Steve was invited by the Lake George Waterkeeper to make a presentation entitled "Applying LID Concepts in the Real World" at the 5th Annual Low Impact Development Conference being held in Lake George, NY on May 7, 2015. (<u>http://fundforlakegeorge.org/2015LID</u>)
- Steve was invited by Dr. Hyunsuk Shin and made a presentation entitled "Real Adaptation and Implementation of GI and LID Technology in USA" at the **World Water Forum** (http://eng.worldwaterforum7.org/main/) being held in Daegu, South Korea on April 14, 2015.
- Steve prepared a presentation for a workshop to civil and environmental engineering students at **Pusan National University** (http://www.pusan.ac.kr/uPNU_homepage/kr/default.asp) in Busan, South Korea on April 17, 2015, entitled "Designing LID System What do you need to know and why".
- Steve was invited by Dr. Hong-Ro Lee of Kunsan National University and made a presentation
 entitled "Understanding Low Impact Development in the Urban-Rural Interface" for the Ariul
 Brainstorming Working Group on April 16, 2015, in Gunsan, South Korea. It will focus on how
 Low Impact Development concepts can be applied to made land areas filled in off the west coast of
 South Korea to address water quality issues.
- Steve was an invited speaker at the **2014 Low Impact Development Conference** sponsored by the Lake George Waterkeeper and the Fund for Lake George in Lake George, NY on May 1, 2014, for land use professionals and regulatory agencies. He will be presenting case studies focusing on the application of LID concepts for commercial and residential projects.
- Steve was invited by Justin Kenney, Green Infrastructure Coordinator of the Vermont Department of Environmental Conservation Watershed Management Division to present an eight-hour workshop entitled "From Bioretention to Permeable Pavement: An In-depth Introduction to Low Impact Development and Green Stormwater Infrastructure" in Montpelier, Vermont on December 5, 2013. The presentation was hosted by the Vermont Green Infrastructure Initiative with support from the following Vermont Agencies and Divisions, Building and General Services, Ecosystem Restoration Program and Agency of Transportation.
- Steve was invited to attend and present on the Application of LID Concepts for the Urban Environment and LID Case Studies at the 2nd Low Impact Development, Stormwater Management Forum hosted by the Land & Housing Institute, Korean Land & Housing Corporation to be held in South Korea in on October 31, 2013. He also made presentations at the Korean Institute of Construction Technology and Pusan National University on various aspects of LID during this time.
- Steve was an invited speaker at the **2013 Low Impact Development Conference** sponsored by the Lake George Waterkeeper and the The Fund for Lake George in Lake George, NY on May 2, 2013 for land use professionals and regulatory agencies. Over 80 design professionals and regulatory people were in attendance. He made a presentation entitled "Barriers to the implementation of LID".
- Steve was an invited presenter at a closed-meeting of the National Association of Home Builders (NAHB) and the Water Environment Federation (WEF) on October 10, 2012 focusing on progressive stormwater management. The presentation focused on the application of LID strategies
on actual development projects and discussed the hydrologic performance and cost effectiveness of LID design.

- Steve was the invited presenter for a 1-hour long webinar presented by **Stormwater Solutions and Stormwater USA** on Low Impact Development and the Basics of Bioretention held on September 18, 2012. Over 760 individuals watched the webinar.
- Steve was an invited speaker at and **EPA/WEF Stormwater Technical Meeting** on July 18, 2012 in Baltimore, MD to discuss the application of Low Impact Development strategies for actual projects with a focus on cost effectiveness when compared to conventional stormwater management as well as field performance of the LID designs. The purpose of this meeting was to assist EPA in the development of a National Stormwater Rule.
- <u>Site Design using Low Impact Development Strategies</u> and <u>What are the impacts of Impervious</u> <u>Cover on Water Quality and Quantity</u> were presented at a workshop entitled "Challenges and Solutions using Low Impact Development", sponsored by the **Lake George Waterkeeper** in Lake George, NY on May 5, 2011, for land use professionals and regulatory agencies. 90 design professionals and regulators in attendance.
- Steve was an invited speaker at the **2012 Low Impact Development Seminar** sponsored by the Lake George Waterkeeper in Lake George, NY on April 25, 2012, for land use professionals and regulatory agencies. 100 design professionals and regulatory people were in attendance. He made a presentation entitled "The Hydrologic Benefits of Vegetation in Site Design".

Conference Presentations:

- Steve made two presentations at the International Erosion Control Association (IECA) Annual Conference being held at the Minneapolis Convention Center in Minneapolis, MN from February 15th to February 18th, 2022. (<u>http://www.eventscribe.net/2022/IECA2022</u>). The first presentation is entitled "Low Impact Sustainable Development Design Manual for Morris, Connecticut". The second presentation is entitled "LID in Connecticut – Are Designs Improving?".
- Steve made two presentations at the UKC 2021 which is sponsored by the Korean-American Scientists and Engineers Association being held at the Hyatt Regency Orange County, CA from December 15th to December 18th, 2021. (<u>https://ukc.ksea.org/ukc2021/wp-</u> <u>content/uploads/2021/12/UKC-2021_PB_v1.pdf</u>). The first presentation is entitled "Implementing LID Retrofits to address Nutrient Loads in Lake Pocotopaug in East Hampton, CT". The second presentation is entitled "How to Design Stormwater Management for Ground Mounted Solar Arrays".
- Steve made the following presentations: "Implementing LID Retrofits to Address Nutrient Loads in Lake Pocotopaug in East Hampton, Connecticut" and "How to Design Stormwater Management for Ground Mounted Solar Array" at the Virtual IECA Annual Conference and Expo on February 22 25, 2021<u>https://ieca.org/IECA/2021%20Annual%20Conference%20Home/IECA/IECA_Events/2021_Events/2021_Virtual_Annual_Conference.aspx?hkey=2dc821ad-cb72-4b2e-80ed-69ad51367611.
 </u>
- Steve made one presentation at UKC 2019 by The Korean-American Scientists and Engineers Association in Chicago, IL in August 2019. The presentation is entitled "Designing Low Impact Development Treatment Systems for Agricultural Environments". (https://ukc.ksea.org/ukc2019/about/about-ukc-2019/)

- Steve made two presentations at the 2019 Annual Conference of IECA being held in Denver, CO in February 2019. The presentations were entitled "A Study on Introduction Plan of Low Impact Development Techniques for Widespread Application in South Korea" and "If LID is so easy to implement, how come we keep getting it wrong".
- Steve made a presentation entitled "LID in China and South Korea" at the 2018 Annual Conference of the Northeast Chapter of IECA in Concord, NH on October 1, 2018.
- Steve made a presentation entitled "If LID is so easy to implement, how come we keep getting in wrong" at the 2018 International Low Impact Development conference being held in Nashville, TN on August 12 15, 2018. The conference is sponsored by ASCE and EWRI. (<u>https://www.lidconference.org/</u>)
- Steve made two presentations at the **2018 TRIECA Conference** being held on March 21 & 22, 2018 at the Pearson Convention Center in Brampton, Ontario. The presentations are entitled "Addressing Stormwater in China with Low Impact Development" and "Implement Low Impact Development in South Korea." This conference is sponsored by the Toronto and Region Conservation Authority and the Canadian Chapter of the International Erosion Control Association.
- Steve made the following presentations at the **2018 IECA Annual Conference** being held in Long Beach, CA in February of 2018. The presentations are entitled "How Low Impact Development strategies can mitigate high intensity rainfall events" and Designing Low Impact Sustainable Development treatment systems for Agricultural Environments".
- Steve was invited by the Dylan Drudul, President of the <u>Mid-Atlantic Chapter of IECA</u> to present the keynote address at a one-day event called "Sediment Control Innovations Roadshow on July 14th in Columbia, Maryland. The keynote is entitled "A Worldwide Perspective on Municipal Stormwater Issues".
- Steve made a presentation entitled "Designing LID Systems: What do you need to know and why" at the 27th Annual Nonpoint Source Pollution Conference being held in Hartford, CT on April 20-21, 2016, as sponsored by the New England Interstate Water Pollution Control Commission.
- Steve will be presenting four one-hour long webinars through Halfmoon Seminars on Low Impact Development. The first entitled "Introduction to Low Impact Development" will be on May 10, 2016 at 12 pm. The second entitled "Bioretention System Design" will be offered on May 10, 2016 at 1:30 pm. The third entitled "Applying LID Concepts to Residential Development" will be offered on May 12, 2016 at 12 pm. The fourth entitled "LID Case Studies" will be offered on May 12, 2016 at 1:30 pm.
- Steve will be making a presentation entitled "Designing LID Systems: What do you need to know and why" at the UKC2016 conference, sponsored by <u>KSEA (Korean-American Scientists and Engineers Association)</u> at the Hyatt Regency DFW in Dallas, Texas, August 10 13, 2016.
- Steve made five presentations at the 2016 Environmental Connection conference by IECA (www.ieca.org) being held in San Antonio, Texas on February 16 19, 2016. The presentations were entitled "Designing LID Systems: What do you need to know and why", "Construction Site Stormwater: The Ignored Problem", "Solving Construction Stormwater Problems in the Field", "Developing Effective LID Municipal Regulations", and "LID Demonstration Projects in Connecticut, a study of Contrasts".

- Steve made two presentations at the EPA Region Stormwater Conference 2015
 (<u>http://epa.gov/region6/water/npdes/sw/ms4/2015conference/index.html</u>) being held in Hot Springs, AR on October 18-23, 2015. The presentations are entitled <u>"Designing LID systems: What do you need to know and why"</u> and <u>"Designing LID treatment systems for Urban and Agricultural Environments."</u>
- Steve made a presentation entitled <u>"Applying LID strategies to residential and commercial</u> <u>developments to address water quality and runoff volumes</u>" at the KSEA Northwest Regional Conference 2015 held at the Idaho Water Center in Boise, Idaho on October 11, 2015.
- Steve made a presentation entitled <u>"Solving Construction Stormwater Problems in the Field"</u> at WEFTEC 2015 (<u>http://www.weftec.org</u>) in Chicago, IL on September 29, 2015.
- Steve made three presentations entitled: "Korean GI/LID Research Facility", Applying LID concepts to High Density Residential Developments, and Municipal LID Regulations" at the 2015 Environmental Connection IECA Annual Conference being held in Portland, Oregon on February 16 18, 2015. He also presented a half day workshop entitled: "Designing LID Projects". He moderated an Expert Panel on Low Impact Development with Seth Brown, (Water Environment Federation), Bob Adair (Construction Ecoservices, Inc.) and Roger Sutherland (AMEC)
- Steve made two presentations at International Low Impact Development Conference 2015 in Houston, Texas which is sponsored by ASCE-EWRI. The presentations are entitled <u>"Korean GI/LID Research Facility"</u>, and "LID Demonstration Projects in Connecticut: The Good and the Bad".
- Steve made presentations <u>entitled "Overview of Low Impact Development" and "The Application of Low Impact Development Strategies for Land Development Projects"</u> along with Dr. Jae Ryu of the University of Idaho and Dr. Hyun-Suk Shin of Pusan National University at the annual meeting of the **American Water Works Association** in Tyson Corners, VA on November 6, 2014.
- Steve made two presentations entitled <u>"Construction Site Stormwater: The Ignored Problem" and</u> <u>"Applying LID Concepts to High Density Residential Development"</u> at the **2014 Annual Conference and Trade Show of the Northeast Chapter of IECA** held at Lake Morey, Vermont on November 4 - 5, 2014.
- Steve made the following presentations entitled: "<u>A Case Study Southbury Medical Facility and Applying LID concepts on undeveloped land and in the urban environment</u>" at Municipal Wet Weather Stormwater Conference, hosted by the **Southeast Chapter of IECA** in Charlotte, NC on August 18th and 19th, 2014.
- Steve made the following presentations: "<u>The Incorporation of LID on Affordable Housing Projects,</u> <u>A Case Study – Southbury Medical Facility and LID' and Municipal LID Regulations</u>" at the 16th Annual EPA Region 6 Stormwater Conference sponsored by the South Central Chapter of IECA in Fort Worth, TX on July 27th through August 1st, 2014.
- Steve made oral presentations at the 2014 Environmental Connection sponsored by the International Erosion Control Association in Nashville, Tennessee on February 25 18, 2014. The presentations were entitled "<u>A Case Study Southbury Medical Facility and LID</u>", "The Implementation of the Highland Estates Detention Basin Retrofit water quality impairment in Northfield Lake", and "Creating Effective Municipal LID Regulations".

- Steve co-presented an all day workshop on Low Impact Development with Jamie Houle of the University of New Hampshire Stormwater Center at the 2013 International Erosion Control Association Northeast Chapter Conference and Trade Exposition on November 19 – 21, 2013 in Warwick, RI.
- Steve made three oral presentations at the 2013 International Low Impact Development Symposium held at the Saint Paul RiverCentre in Saint Paul, Minnesota on August 18 – 21, 2013. The presentations were entitled "<u>A Case Study – Southbury Medical Facility and LID", "LID</u> regulations in Connecticut: The Long and Tortured Road", and "Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut."
- Steve presented two papers at the **2013 EWRI World Environmental and Water Resources Congress** held in Cincinnati, Ohio on May 19- 23, 2013. The papers are entitled: <u>"Municipal LID</u> <u>Regulations - What is important to include to be successful?"</u> and <u>"Creating a Stormwater Park in the</u> <u>City Meadow of Norfolk, Connecticut"</u>. <u>http://content.asce.org/conferences/ewri2013/index.html</u>
- Steve made a presentation at the **Soil and Water Conservation Society Winter Conference** held in Berlin, Connecticut on February 15, 2013. The presentation focused on erosion and sedimentation control issues with Low Impact Development treatment systems.
- Steve presented two papers at the 2013 Environmental Connection held in San Diego, CA on February 10 – 13, 2013. The papers are entitled <u>"LID Demonstration Project for Seaside Village in</u> Bridgeport, Connecticut" and <u>"Creating a Stormwater Park in the City Meadow of Norfolk,</u> <u>Connecticut"</u>. He also presented a full day LID workshop entitled <u>"Next Generation Low Impact</u> <u>Development and Meet Today's Needs"</u> and a half day <u>workshop on Low Impact Development</u> <u>covering Environmental Site Design, Water Quality Issues, Pollutant Loading Analyses, Designing</u> <u>different types of LID treatment systems and actual case studies.</u>
- Steve made three presentations at the 2012 Annual Conference of the Northeast Chapter of IECA in Fishkill, NY on November 7, 8, & 9, 2012. The presentations are entitled: <u>"LID Demonstration Projects in Connecticut, A Study of Contrasts, Environmental Site Design and LID Hydrologic Issues, and Siting and Designing LID Treatment Systems with Case Studies"</u>
- Steve made two oral presentations entitled <u>"Applying Environmental Site Design Strategies to Design a Residential Subdivision</u>" and <u>"The incorporation of LID on Affordable Housing Projects</u>" at the 2012 Ohio Stormwater Conference in Toledo, Ohio sponsored by the Ohio Stormwater Association on June 7th and 8th, 2012.
- Presented two papers at the ASABE Watershed Technology Conference in Bari, Italy, May 28 30, 2012. The papers were entitled <u>"LID Demonstration Project for Seaside Village in Bridgeport, Connecticut"</u> and <u>"The creation of a Stormwater Park in the City Meadow of Norfolk, Connecticut"</u>.
- Steve made one oral presentation entitled <u>"LID Demonstration Project for Seaside Village in Bridgeport, Connecticut"</u> and presented one poster entitled "The Incorporation of LID on Affordable Housing Projects" at the 2012 World Environmental & Water Resources Congress in Albuquerque, New Mexico sponsored by EWRI/ASCE on May 20 24, 2012.
- <u>"Stormwater Retrofit of Highwood Estates Detention basins to address Water Quality Issues and How</u> the application of Environmental Site Design Strategies can provide a resource for carbon <u>sequestering</u>" were presented at the **2011 International Erosion Control Associated Northeast**

Chapter Annual Conference on December 1 - 3, 2011 at the Crowne Plaza Hotel in Natick, Massachusetts.

- <u>Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits; A</u> <u>Low Impact Development (LID) Model Ordinance and Guidance Document and The Farmington</u> <u>River Enhancement Grants: A tale of three towns and the path to Low Impact Development were</u> presented at the **Philadelphia Low Impact Development Symposium "Greening the Urban Environment"** in Philadelphia, PA (September 2011) sponsored by EWRI, Villanova University, North Carolina University and the University of Maryland.
- <u>Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits; The Farmington River Enhancement Grants: A tale of two towns and the path to Low Impact Development and A Low Impact Development (LID) Model Ordinance and Guidance Document was presented at the EWRI/ASCE 2011 World Environmental & Water Resources Congress in Palm Springs, CA (May 2011).</u>
- <u>Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits</u> was presented at the "Annual Nonpoint Source Pollution Conference", sponsored by the **New England Interstate Pollution Control Commission** in Saratoga Springs, NY, on May 17-18, 2011.
- <u>Stormwater Pollutant Load Modeling</u> presented at the **Northeast Chapter of IECA Annual Conference** at the University of New Hampshire Stormwater Center in Durham, NH (December 2010).
- How the application of Environmental Site Design Strategies and Low Impact Development Storm Water Treatment Systems can mimic the Natural Hydrologic Conditions in a watershed and provide a resource for carbon sequestering and The Importance of Assessing Pollutant Loads from Land Development Project and the Design of Effective Storm Water Treatment Systems at the EWRI/ASCE Watershed Management Conference in Madison, WI (August 2010).
- <u>The Tolland Low Impact Development Design Manual: The Changing Paradigm for Land</u> <u>Development, The application of Environmental Site Design Processes to design a residential</u> <u>subdivision</u> and <u>A Low Impact Development (LID) Model Ordinance and Guidance Document</u> at the <u>ERWI/ASCE 2010 World Environmental and Water Resources Congress</u> in Providence, RI (May 2010).
- <u>The application of Form-Based Zoning and Low Impact Development for the Revitalization of the</u> <u>Town Center of Simsbury, Connecticut</u> and <u>The Integration of Low Impact Development to enhance</u> <u>the application of Smart Code Zoning to create a Gateway District to the Historic Town Center of</u> <u>Tolland, Connecticut</u> at the **EWRI/ASCE 2010 International Low Impact Development Conference** in San Francisco, CA (April 2010).
- <u>The application of Environmental Site Design Processes to design a residential subdivision</u> and <u>Assessing Pollutant Loads and Evaluation of Treatment Systems to achieve Water Quality Goals for</u> <u>Land Development Projects</u> at the **EWRI/ASCE 2009 World Environmental & Water Resources Congress** in Kansas City, Missouri (May 2009).
- <u>Ahead of the Curve Tolland, CT adopts Low Impact Development Regulations and Preparing a</u> <u>Pollutant Loading Analysis for Land Development Projects</u> at the **Urban Water Management**

Conference in Overland Park, KS sponsored by National Association of Clean Water Agencies (NACWA) and the City of Independence Water Pollution Control Department (March 2009).

- <u>Ahead of the Curve Tolland, Connecticut adopts Low Impact Development Regulations</u> and <u>Trade</u> <u>Winds Farm – Winchester, Connecticut – How to create a LID subdivision</u> along with the preparation of a poster on <u>Preparing a Pollutant Loading Analysis for Land Development Projects</u> at **EWRI/ASCE 2008 International Low Impact Development Conference** in Seattle, WA (November, 2008).
- <u>Trade Winds Farm Winchester, Connecticut How to create a LID subdivision</u> and <u>Preparing a</u> <u>Pollutant Loading Analysis for Land Development Projects</u> at the **IECA Northeast Chapter's Annual Conference & Trade Exposition** in Portland, ME (October, 2008).
- The Preparation of a Valid Pollutant Loading Analysis at the National StormCon 2008 Conference in Orlando, FL (August, 2008).
- Panelist with Linda Farmer, AICP for Profiles of Partnerships for Addressing NPS Pollution at **NEIWPCC Annual Non-point Source Pollution Conference** in Groton, CT (May, 2008).

Workshop Presentations:

• Steve presented a 6.5-hour webinar entitled "Low Impact Development" on Wednesday, April 20, 2022 from 10:00 am to 2:00 pm and then on Thursday, April 21, 2022 from 10:00 am to 12:45 pm sponsored by Halfmoon Seminars.

• Steve presented a two-hour webinar entitled "Bioretention System Design" on March 28, 2022. (<u>https://halfmoonseminars.org/product/webinars/biorentention-system-design/</u>).

- Steve made a two-hour webinar entitled "How to Design for Stormwater Management for Ground Mounted Solar Arrays" on Wednesday, December 29, 2021 sponsored by Halfmoon Seminars (<u>https://halfmoonseminars.org/product/webinars/how-to-design-for-stormwater-management-for-ground-mounted-solar-arrays-3/</u>)
- Steve made a 6.5-hour presentation on Erosion and Sediment Control on Tuesday, January 25, 2022 for Halfmoon Seminars.
- Steve made an all-day (6.5 hour) webinar entitled "New York Erosion and Sediment Control" on February 3, 2022. (<u>https://halfmoonseminars.org/product/webinars/new-york-erosion-and-sediment-control/</u>).
- Steve presented a 2-hour webinar entitled "How to Design Stormwater Management for Ground Mounted Solar Arrays" on July 14, 2020. This webinar is hosted by Halfmoon Seminars.
- Steve presented a two-day webinar encompassing 6.5 hours entitled "Low Impact Development" on July 15, 2020 and July 16, 2020. The webinars are hosted by Halfmoon Seminars.
- Steve presented an all-day workshop on Low Impact Development for continuing education for design professionals in Little Rock, Arkansas on February 28, 2020 which is sponsored by Halfmoon Seminars.

- Steve presented an all-day workshop on Low Impact Development for continuing education for design professionals in Nanuet, NY on December 19, 2019 which is sponsored by Halfmoon Seminars.
- Steve presented a webinar entitled "Construction Stormwater Regulation Strategies: Best Practices to Assure NPDES Compliance" on Thursday, November 12, 2015 at 2:00 pm to 3:00 pm eastern time. The webinar is sponsored by Business and Legal Resources.
- Steven presented a full day workshop entitled "<u>Stormwater Management 2015</u>" in Columbia, Maryland on August 13, 2015 which focused on applying the State of Maryland Stormwater Manual. The workshop was sponsored by Halfmoon Seminars, LLC and 113 people attended the workshop.
- Steve presented a full day workshop on "<u>Stormwater Regulations in Connecticut</u>", sponsored by Halfmoon Seminars, LLC in North Haven, Connecticut on June 25, 2014. More than 30 engineers and landscape architects attended the workshop.
- Steve was the facilitator in a live chat as part of the Stormwater Solutions Virtual Trade Show on April 2, 2014. The topic of the live chat will be LID with a focusing on Bioretention systems.
- Steve made a presentation entitled "<u>What is Low Impact Development and how do you apply it to</u> <u>residential projects</u>" for the Connecticut Chapter of the American Institute of Architects in New Haven, Connecticut on April 22, 2014.
- Steve made a presentation entitled "<u>Wastewater to Stormwater; Designing a subsurface flow gravel</u> <u>wetlands</u>" at the annual meeting of the Connecticut Association of Wetland Scientists on March 20, 2014 in Southbury, Connecticut.
- Steve made a presentation entitled "<u>Low Impact Development and the Connecticut General</u> <u>Stormwater Permit</u>" at the annual meeting of the Southern New England Chapter of the Soil and Water Conservation Society on March 14, 2014 at Eastern Connecticut State University.
- He co-taught an ASCE Short Course entitled, "Introduction to Low Impact Development" with Mike Clar at the 2013 Low Impact Development Symposium held in St. Paul, Minnesota on August 18, 2013.
- Steve presented a workshop on Low Impact Development to the Town of Naugatuck Inland Wetlands Commission on June 5, 2013 to demonstrate how the implementation of LID can reduce stormwater impacts in the urban area of the community.
- Steve presented a webinar entitled <u>"The Basics of Low Impact Development on Wednesday, April 17, 2013.</u>
- Steve presented a webinar entitled <u>"Changing the Regulatory Framework to Adopt LID Strategies"</u> on Thursday, March 7, 2013 and on Thursday, August 8, 2013 from 11:30 am to 1:00 pm through ASCE and EWRI. Link for more information.
- Steve presented a three-hour workshop on Low Impact Development on June 5, 2012 at the Oxford town hall for municipal land use staff and officials at the request of the **Oxford Inland Wetlands and Watercourses Commission**. Approximately 20 individuals attended the workshop.

- Steve presented an eight-hour short courses on Low Impact Development at the EWRI/ASCE 2011
 World Environmental & Water Resources Congress in Palm Springs, CA (May 2011). The
 following topics will be covered: <u>Understanding and Implementing Principles of Low Impact</u>
 Development, Applying LID Strategies to a Site, Low Impact Development Hydrologic
 Considerations, The Regulatory Framework and LID, LID Integrated Management Practices, Erosion
 and Sedimentation Controls for the Implementation of LID Practices and Case Studies (Applying LID
 and Regulations). 12 attendees took the course, including professors from Mississippi State
 University, Oklahoma State University, Adelaide University (Australia) and Pusan National
 University (South Korea).
- <u>Understanding and Implementing Principles of Low Impact Development, Applying Low Impact Development to a Site, Low Impact Development Hydrologic Considerations, Low Impact Development Integrated Management Practices, Erosion and Sediment Control for the Implementation of Low Impact Development Practices, and Case Studies of LID (Residential and Commercial) at workshops on Low Impact Development sponsored by HalfMoon, LLC (https://www.halfmoonseminars.com) in Albany, NY, Ronkonkoma, NY, North Haven, CT, Manchester, NH, Nanuet, NY, Cleveland, OH, Natick, MA, Portland, ME Fort Washington, PA, Springfield, MA, Wilmington, DE, White River Junction, VT, Somerset, NJ, and White Plains, NY for continuing education credit for design professionals. A total of 322 land use professionals have attended these workshops.
 </u>
- <u>Pollutant Loads and the Design of Effective Stormwater Treatment Systems</u> was presented at the Virtual H2O conference on February 22, 2011 as presented by **PennWell Publishing**. 25 professionals in attendance.
- <u>LID Stormwater Treatment Systems: Siting, Design and Installation for Maximum Environmental</u> <u>Benefit. What are the aesthetic, financial and maintenance implications?</u> presented at a seminar for the **AIA Connecticut, Committee on the Environment** in New Haven, CT (December 2010). 70 architects in attendance.
- Low Impact Development and the Environmental Site Design process to create sustainable sites at a seminar for the AIA Connecticut, Committee on the Environment in New Haven, CT (September 2010). 40 architects in attendance.
- Workshop entitled <u>Using Environmental Site Design Strategies and LID stormwater systems for</u> <u>commercial development</u> at the **Connecticut Conference on Natural Resources** at the University of Connecticut (March 2010). 10 design professionals and regulatory staff in attendance.
- <u>Implementing Low Impact Development in Your Community</u> for the **Connecticut Technology Transfer Center** in Glastonbury, CT (November, 2009). 40+ professionals in attendance.
- <u>What towns can do to encourage LID</u> at the "Low Impact Development Forum" presented by the **Housatonic Valley Association** in Shelton, CT. (October 2009). 12 professionals in attendance.
- <u>Town of Tolland, CT; Low Impact Development Regulations and Design Manual</u> at the **Community Builders Institute** for the workshop entitled: "Swift, Certain & Smart: Best Practices in Land Use" (May 2009). 30+ professionals in attendance.
- Low Impact Development, Environmental Site Design and Water Quality issues and strategies to local municipalities (Greenwich, and Old Lyme) to provide an educational opportunity about the

many benefits of Low Impact Development in 2009. 30+ design professionals, regulatory commissioners and staff in attendance for each presentation.

- Low Impact Development, Environmental Site Design and Water Quality issues and strategies to local municipalities (**Bolton, Farmington, and Guilford** to date) on a pro bono basis to provide an educational opportunity about the many benefits of Low Impact Development in 2009. 25+ design professionals, regulatory staff and commission members in attendance for each presentation.
- Workshop entitled <u>Using Environmental Site Design Strategies to create a residential subdivision</u> at the **Connecticut Conference on Natural Resources** at the University of Connecticut (March 2009). 20 design professionals and regulatory staff in attendance.
- <u>The Need for Pollutant Loading Analyses for Land Development Projects</u> to storm water engineers at **CT DEP** (March 2009). 6 DEP staff in attendance.
- <u>A review of existing land use regulations and storm water management issues for the Middle Quarter</u> <u>Districts in Woodbury, CT and how the implementation of Environmental Site Design and Low</u> <u>Impact Development strategies can improve water quality of storm water runoff</u> for the Woodbury land use agencies (August 2008). 15 regulatory commission members in attendance.
- <u>Low Impact Development</u> at meeting of the **Connecticut Association of Zoning Enforcement Officers** (October 2007). 30+ professionals in attendance.
- <u>Low Impact Development and adoption of LID regulations by municipalities</u> at workshops of the Land Use Leadership Alliance (LULA) (2007, 2010 and 2011). 20+ professionals in attendance at each presentation.
- <u>Stormwater management and Low Impact Development</u> at workshop sponsored by the **Northwest Conservation District** held for land use officials (March 2006). 20+ professionals in attendance.

Conferences Attended

- Bioretention Summit: Ask the Researcher Annapolis, MD by the University of Maryland (Dr. Alan Davis), North Carolina State University (Dr. Bill Hunt) and Villanova University Stormwater Partnership (Dr. Rob Traver) (July 2010).
- Workshop at the University of New Hampshire Stormwater Center on permeable pavements. This full-day training included field visits to a variety of on-the ground porous pavement installations throughout the region. Participants learned key design principles necessary to successfully design, evaluate, specify, and install porous pavement for stormwater management. (December 2009).
- Two workshops at the University of New Hampshire Stormwater Center in Durham, NH to observe conventional and Low Impact Development storm water treatment systems in operation. The Stormwater Center is independently verifying the effectiveness of the various treatment systems to remove pollutants from runoff and reduce impacts associated with storm flows. (March 2006 and May 2007).
- 2ND National Low Impact Development Conference North Carolina State University held in Wilmington, NC, (March 2007).

- Designing Bio/Infiltration Best Management Practices for Stormwater Quality Improvement University of Wisconsin (Madison, WI) (November 2005).
- Stormwater Design Institute Center for Watershed Protection (White Plains, NY), (December 2004).
- Engineering and Planning Approaches/Tools for Conservation Design University of Wisconsin (Madison, WI) (December 2003).
- Law for Design Professionals in Connecticut Lorman Education Services in Trumbull, CT (September 2002).
- On-site Wastewater Facility Design University of Massachusetts in Amherst, MA (May 2002).
- The Northeast Onsite Wastewater Short Course & Equipment Exhibition New England Interstate Water Pollution Control Commission in Newport, RI (March 2002).
- Designing On-site Wetland Treatment Systems, University of Wisconsin, (Madison, WI) (October 1999).
- Cost Effective Drainage System Design University of Wisconsin (Atlanta, GA) (November 1997).
- Treatment Wetlands, University of Wisconsin, (Madison, WI). "Creating and Using Wetlands for Wastewater Disposal and Water Quality Improvement" (April 1996).
- Alternative On-site Wastewater Treatment Systems, New England Intrastate Pollution Control Commission's On-Site Wastewater Task Force in Westford, MA (November 1994).
- Stormwater Quality, University of Wisconsin, (Portland, ME). "Designing Stormwater Quality Management Practices" (June 1994).



LOW IMPACT SUSTAINABLE DEVELOPMENT PROJECTS

LID and LISD Regulations and Design Manuals

 Town of Tolland. CT – Prepared amendments to Town of Tolland Zoning, Subdivision, Inland Wetland regulations and Road Design Manual to incorporate Low Impact Development standards. Wrote "Design Manual – Low Impact Development – Storm Water Treatment Systems – Performance Requirements – Road Design & Storm Water Management" prepared for the Town of Tolland; October 2007. The Town of Tolland was awarded the Implementation Award by the CT-APA for the LID regulations and design manual in December 2008.

- Town of Plainville, CT Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. A LID design manual was written by Steve Trinkaus to address specific development/stormwater issues for the Town of Plainville. The regulatory changes and LID manual were adopted by the Planning and Zoning Commission in September 2010. This work was funded by the Farmington River Enhancement Grants from CT DEP.
- Town of Harwinton, CT In conjunction with Planimetrics of Avon, CT, the existing land use regulations were evaluated for barriers to the implementation of Low Impact Development (LID). The project team suggested changes to the land use regulations to encourage the application of LID in the community. Steve Trinkaus defined design processes and strategies to encourage the implementation of LID in the town. This work was funded by the Farmington River Enhancement Grants from CT DEP.
- Town of East Granby, CT Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. Steve Trinkaus prepared a LID Design Manual and LID Educational document for the town working with Gary Haynes, the town planner. This work was funded by the Farmington River Enhancement Grants from CT DEP.
- **Town of Morris, CT** This office performed the technical regulatory audit to identify barriers to the implementation of LISD. These barriers were removed from the regulations to provide for the implementation of LISD. A LISD design manual was written by Steve Trinkaus to address specific development/stormwater issues for the Town of Morris. The regulatory changes and LISD manual were adopted by the Planning and Zoning Commission in January 2020.

LID Projects

- Victorian Heron, LLC Bethel, Connecticut (Affordable Housing) An existing Victorian house with 6 apartments will be expanded by the addition of a new building containing five more apartment developed under 8-30g. Access and parking areas improved for fire access to site. Stormwater will be handled by the creation of a Bioretention system to address water quality, groundwater recharge volume and peak rate attenuation.
- Garden Homes Management Westport, Connecticut (Affordable Housing) 19-unit residential apartment building being developed under 8-30g (affordable housing) on 1 acre site directly tributary to West Branch of the Saugatuck River. All construction activities are located outside regulatory setbacks to tidal wetland and 100-year flood boundary. Stormwater management system was designed to fully infiltrate the runoff for all storm events up to and including the 100-year event and reduce pollutant loads to existing levels as wooded parcel.
- Jelliff Mill, LLC New Canaan, Connecticut: Redesigned the site layout to create ten single family residential units on a site overlooking the restored historic Jelliff Mill dam on the Noroton River. The site design uses two sections of permeable pavement and a Bioretention system to infiltrate the runoff from the proposed impervious areas on the site. Due to the presence of sand and gravel soils, all

runoff from the impervious areas will be infiltrated up to and including the 25-yr storm event (5.7" of rain/24 hrs). Fully constructed and occupied.

- SRG Family, LLC Southbury, Connecticut: Design final site grading for 38,000+ sq.ft. Medical services building and approximately 225 parking spaces in order to maintain overland flow patterns. Designed multiple LID treatment systems consisting of bioswales with weirs, Bioretention systems and Permeable Pavement (asphalt) to handle runoff from all impervious area on the project site. The LID treatment systems are capable of fully infiltrating the runoff from a 50-yr storm event will virtually eliminating the discharge of any pollutants to the adjacent wetland area. Currently pending before Inland Wetlands Commission for modification of original approval.
- Farmington River Watershed Association Winchester, Connecticut: Designed stormwater retrofit for existing 1-acre paved parking area at the science building of the Northwest Community College to treat runoff prior to discharge into the Still River. Retrofit consists of forebay and Bioswale to treat runoff from parking area and building roof. Currently at Bid stage.
- Garden Homes Management Southport, Connecticut (Affordable Housing) Designed site to support 96-unit apartment building and 115 parking spaces. Site contains both freshwater and tidal wetlands. Stormwater management design required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 10-yr rainfall event to the pre-development peak rate of runoff from the 2-yr rainfall event. The stormwater management design includes grassed swales, Bioretention systems and underground concrete galleries to meet all of these stormwater requirements. Due to favorable soils on the site, the site will likely be a zero discharge site. Court Approved.
- **Garden Homes Management** Milford, Connecticut (Affordable Housing) Designed site to support 257-unit apartment building with 295 parking spaces. Stormwater management design required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 25-yr rainfall event to the pre-development peak rate of runoff from the 25-yr rainfall event. The design utilizes a Bioretention system, two underground galleries systems as well as a small detention basin to meet all of the stormwater requirements. Court Approved.
- Garden Homes Management Milford, Connecticut (Affordable Housing) Designed site to support 21,888 sq.ft. building (three stories) containing 36 studio apartments and 45 parking spaces. Permeable pavement and Bioretention will be used on the site to treat runoff for water quality improvements along with reducing runoff volume from the 1-yr to 100-yr storm event. Construction complete and project occupied.
- Quickcomm, Inc. Newtown, CT: Design a parking facility for approximately 140 vehicles to serve an existing corporate use. Runoff from the entire parking facility will be directed to one of seven Bioretention systems. Water quality of the runoff will be improved by the filtration through a specialized soil media and will then infiltrate into the underlying soils. Due the presence of sand and gravel soils, the Bioretention systems will fully infiltrate all runoff up to and including a fifty-year design storm (6.5" of rain/24 hours). Land use approvals obtained in the fall of 2012 and work completed in the fall of 2013.
- **Garden Homes Management** Fairfield, Connecticut (Affordable Housing) Designed site to support 32,592 sq.ft. building (three stories) containing 54 studio apartments and 68 parking spaces. Permeable pavement will be used for majority of parking facility. Roof drains will also be directed

to permeable pavement system for water quality improvement. Reservoir layer was sized to fully contain 1.7" of runoff from contributing impervious area. By using a raised underdrain an anaerobic condition will be maintained in the bottom of the reservoir, thus providing denitrification of Total Nitrogen prior to discharge to tidal section of Rooster River. Construction complete and occupied.

- Garden Homes Management Oxford, Connecticut (Affordable Housing) Design site plan for 126 units of manufactured housing on 41+ acres. Stormwater management is achieved by the use of linear Bioretention systems (Bioswales) along both sides of all interior roads. After treatment in Bioswales, all runoff is directed to standard detention basins to provide peak rate attenuation from the 2-year to 100-year rainfall event. Approved by Inland Wetlands Agency, Denied by Planning and Zoning Commission. Court Approved and under construction.
- Compton Family Trust New Hartford, Connecticut: Design two wet swales systems to convey and filter runoff from road which is currently discharged into West Hill Lake via a paved swale. West Hill Lake has very good water quality and the owner desires this work on this property to become a template for other homeowners on West Hill Lake to prevent adverse impacts of stormwater on the water quality of the lake. Received all necessary land use approvals. Construction to commence in the summer of 2012.
- **Highwood Estates** Thomaston, Connecticut: Design retrofits for two existing failing detention basins serving existing 50 lot residential subdivision. Retrofits were designed using LID techniques to improve water quality reaching Northfield Brook, an impaired waterway. The larger basin was converted to an Extended Detention Shallow Wetlands to significantly reduce pollutant loads. Due to a limited area, only a forebay and deep pool could be designed for the smaller basin, thus providing measurable improvements in water quality.
- Farmington River Watershed Association Winchester, Connecticut: Design stormwater retrofits consisting of a Bioretention system at the Town of Winchester Wastewater Treatment Plant and a Bioswale at the Town of Winchester Public Drinking Supply facility. These projects are being funded as LID demonstration projects to increase public awareness of LID. The systems were installed in June 2012 and were featured in articles in the Republican American and Register Citizen newspapers.
- Harwinton Sports Complex Harwinton, Connecticut: Redesign stormwater management system for indoor sports facility to use vegetated swales and Bioretention systems. Redesign site grading to eliminate all structural drainage in parking facility. Client saved over \$ 40,000 on infrastructure costs by the use of LID treatment systems.
- Holland Joint Venture, LLC Bridgewater, Connecticut: Prepared site plan for 28,000 sq.ft. industrial/light assembly use and 140 parking spaces on 10.94 acres. Utilize Environmental Site Design strategies to preserve large portions of site in natural condition, minimize impacts due to site disturbance, and minimize impacts to wetland/watercourse system by access driveway. Designed five Bioretention systems for storm water management and pollutant removal from all impervious areas.
- **Goodhouse Flooring, LLC** Newtown, Connecticut: Design site to accommodate 8,800 commercial building and associated driveway and parking areas on 1-acre site. Designed eight Bioretention systems to handle runoff from all impervious surfaces. Analyze and demonstrate that State of Connecticut water quality goals will be achieved for the site design.

- **Trade Winds Farm** Winchester, Connecticut: 24 lot Open space subdivision on 104+ acres of land. Performed all civil engineering design work for project. Notable feature of project is the preservation of 64+ acres of the site as dedicated Open Space. Many LID strategies such as Environmental Site Design, site fingerprinting, volumetric reduction and water quality improvements were incorporated into site design. Storm water treatment systems utilized vegetated basins, vegetated swales with gravel filter berms, emergent marsh, Bioretention systems, linear vegetated level spreader, and meadow filter strips.
- Northern View Estates Sherman, Connecticut: Five lot subdivision with private road. Design has no direct wetland impacts and only minor intrusions into defined 100' upland review area. Low Impact Development systems, such as vegetated swales and Bioretention were used to treat post-development runoff while maintaining existing drainage patterns to the maximum extent possible.
- Mill River New Milford, Connecticut: Designed 14 lot open space subdivision on 68-acre site. Performed all civil engineering services for project. .LID treatment systems such as a permanent pond/emergent marsh system, linear biofiltration swale, and rain gardens were designed for the site.
- **Byron Avenue Cluster Development** Ridgefield, Connecticut: Seven lot cluster subdivision on 4 acres. The Stormwater management system consisted of a road with no curbs, grassed swales, and constructed wetland with detention to reduce pollutant loads and increases in the peak rate of runoff.
- The Estates on the Ridge Ridgefield, Connecticut: 32 lot open space subdivision on 152+ acres. Over 80 acres of the site will be preserved as Open Space as part of this project. Stormwater will be treated by the use of rain gardens for roof drains, infiltration trenches for footing drains, emergent marsh systems and vegetated swales for conveyance and treatment of road runoff. Designed over 1 mile of proposed road for project. Designed bottomless culverts over several wetlands crossing to minimize direct impact on wetland areas.
- G & F Rentals, LLC Oxford, Connecticut: By utilizing LID stormwater concepts such as grass filter strips, Bioretention in parking islands, Bioretention for roof drains, and infiltration trenches, a total of 54,000 sq.ft. of commercial office space along with 140+ parking spaces was placed on 10-acre site. The project also restored previously degraded inland wetlands on the site.
- **Dauti Construction Edona Commons** Newtown, Connecticut: Designed 23-unit affordable housing plan to minimize impacts on delineated wetland areas. Designed three construction wetland systems for the treatment of storm water runoff for water quality renovation.
- American Dimensions, LLC New Milford, Connecticut: Redesigned the storm water treatment systems for a 7-lot residential subdivision. Rain gardens were designed to handle the runoff from all roof areas and proposed driveways. Each rain garden provided the required Water Quality Volume and Groundwater Recharge Volume as specified in the 2004 Storm Water Quality Manual. A Subsurface Gravel Wetland was designed to treat the full Water Quality Volume for runoff from adjacent roads network which drained through the subject property.
- Molitero Residence New Fairfield, CT: Designed five Bioretention systems to mitigate both volumetric increases of runoff and address water quality issues for large building addition to single family residence on Candlewood Lake. Also designed landscape filter strip above lake edge to filter runoff from up gradient lawn area. Bioretention systems fully infiltrated 5" of rain in 24 hours from Hurricane Irene in August of 2011. Project was featured in newsletter of Candlewood Lake Authority to demonstrate the effectiveness of LID treatment systems in a lake environment.

• **Multiple single-family residences** – Design Bioretention systems to mitigate volumetric increases of runoff due to increases of impervious cover on the lot for large building additions and new construction including the reduction of volumetric increases up to the 25-yr event (5.7" of rain in 24 hours).

Residential Subdivisions

- Stone Ridge Estates, 59 lot residential open space subdivision, Ridgefield, Connecticut (Town of Ridgefield)
- Oak Knoll, 14 lot open space subdivision, Ridgefield, Connecticut (Mike Forbes)
- Ward Acres Farm, 12 lot open space subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- Horblitz Subdivision, 13 lot open space subdivision, Ridgefield, Connecticut (John Sturges)
- **McKeon Subdivision**, 14 lot conventional subdivision, Ridgefield, Connecticut (McKeon Family Trust)
- **High Ridge Estates**, 5 lot subdivision in historic district, Ridgefield, Connecticut (Scandia Construction)
- Millstone Court, 7 lot conventional subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- Cricklewood Subdivision 12 lot conventional subdivision, Redding, Connecticut (Jay Aaron)
- Spruce Meadows Subdivision 12 lot conventional subdivision, Wilton, Connecticut (Piburo Builders)
- Noroneke Estates 12 lot open space subdivision, Ridgefield, Connecticut (John Sturges)
- Lynch Brook Lane 7 lot open space subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- Ledgebrook Subdivision 27 lot conventional subdivision, Southbury, Connecticut (Conte Family Trust, LLC)
- Seven Oaks 19 lot open space subdivision, Ridgefield, Connecticut (Basha Szymanska)
- Applewoods 29 lot conventional subdivision, Bethel, Connecticut (Gene & Joe Nazzaro)

Third Party Engineering Reviews

- Groton Open Space Association Wal-Mart Super center, Mystic Woods Age Restricted Development, and changes to stormwater standards in the Town of Groton regulations Groton, Connecticut. Focus of review was on stormwater management plans to address water quality and runoff volumes per the CT DEP 2004 Storm Water Quality Manual as well as the adequacy of the erosion and sedimentation control plan for the proposed development. Project approved with modifications to stormwater management system to address water quality.
- Town of Tolland Planning & Zoning Commission Star Hill Athletic Complex with focus on water quality impacts on existing impaired waterway. Focus was on suggesting changes to stormwater management system to comply with recently adopted Low Impact Development requirements in the Town of Tolland. Project approved and built with modifications to stormwater management system to address water quality of post-development runoff.
- Town of Newtown Inland Wetlands Commission Sherman Woods 38 lot residential Subdivision with focus on stormwater management and water quality. Review stormwater management plan for compliance with CT DEP 2004 Storm Water Quality Manual to address water quality issues being directed to high quality wetland systems. Also review erosion & sedimentation control plan for adequacy and compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control. Project withdrawn and not resubmitted.
- Town of Winchester Inland Wetlands Commission 30,000 sq.ft. Commercial building with grading and stormwater management within 100-yr flood plain. Plan reviewed focused on impacts to

floodway and 100-year flood plain as a result of the placement of significant fill within the flood plain. Project approved with modifications to stormwater management system.

- Town of Southbury Inland Wetlands Commission 35,000 sq.ft. Medical office building proposed in close proximity to inland wetlands & watercourses. Review focus on the adequacy of the stormwater management plan to address water quality and runoff volumes prior to discharge into onsite wetland areas.
- Friends of Litchfield Stop & Shop proposal on existing retail site proposing an increase of impervious area of 1 acre directly draining into an aquifer protection area. Focus of review was on adequacy of stormwater management system to address water quality of runoff and prevent further off-site adverse impacts. Project approved with minor modifications to stormwater management system.
- The Regency at Ridgefield Proposal for contractor's yard on steep slope immediately uphill of existing pond and wetlands. Project proposed removal of over 45,000 cubic yards of earth and rock to facilitate construction of building. Focus of review was on adequacy of erosion control and stormwater management plan to prevent discharges of pollutants to receiving pond. Project denied citing impacts of stormwater on existing pond.
- Friends of Oswegatchie Hills Nature Preserve, Inc. and Save the River, Save the Hills, Inc. Review of preliminary site plan for 840 unit of affordable housing on a 230+ acre site directly adjacent to the Niantic River submitted for a zone change to the Planning and Zoning Commission. Focus of review was on stormwater management and impacts to down gradient wetlands, including the Niantic River. Preliminary site plan approval granted with conditions of approval requiring final plans to address stormwater issues raised by Trinkaus Engineering, LLC.
- Save the River, Save the Hills, Inc. Review of the erosion control plans and stormwater management plans for 90-acre solar array proposed on core forest in Waterford, Connecticut which drained directly to first order cold water fishery streams. Provide written comments to Connecticut Siting Council on behalf of Save the River, Save the Hills (Intervenor). Siting Council denied project citing erosion and stormwater management issues with the plan.
- Town of Brookfield Inland Wetlands Commission The Enclave at Brookfield, an affordable housing project with 187 units on 9.8 acres proposing filling of wetland, locating stormwater basin within inland wetland area and a significant increase of impervious. Review focused on adequacy of stormwater management system to address water quality, runoff volume and peak rate changes due to development in accordance with CT DEP 2004 Storm Water Quality Manual and local land use requirements, review of erosion & sedimentation control plan for compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control and local land use requirements. Offer modifications to plans to address water quality and runoff volume which applicant accepted resulting in approval of project.
- Town of Brookfield Inland Wetlands Commission and Zoning Commission The Renaissance, an affordable housing project with 156 units of 5+ acres adjacent to the Still River replacing existing development on the site. Review focused on adequacy of stormwater management system to address water quality, runoff volume and peak rate changes due to development in accordance with CT DEP 2004 Storm Water Quality Manual and local land use requirements, review of erosion & sedimentation control plan for compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control and local land use requirements. Additionally, reviewed issues of development in the floodway and 100-year flood plain of the Still River. Provided modifications to plans to address water quality and runoff volume which applicant accepted resulting in approval of project.
- Town of Brookfield Inland Wetlands Commission Brookfield Village Phase II 12/23 Station Road proposing commercial space and residential apartments in the "Four Corners of Brookfield"; 70 Stony Hill Road proposing 26 units of affordable housing served by private water and on-site sewage disposal systems; 468 Federal Road – 280-unit affordable housing project. In all applications, the review focused on the probable adverse impacts to inland wetlands and watercourse as well as the

adequacy of the erosion control plan and stormwater management plan to treat non-point source pollutants and runoff volumes to minimize adverse impacts to the receiving inland wetlands and watercourses. Original application withdrawn after initial review. Provide sketch of modifications to improve water quality of post-development runoff and minimize direct impacts on inland wetlands. Application not resubmitted at this time.

- Town of Salisbury Inland Wetlands Commission Review of multiple applications for residential development and/or improvements on existing lakes. Issues reviewed were stormwater management to ensure that water quality of post-development runoff was improved prior to entering lake and that erosion control plans were appropriate and adequate to prevent eroded material from reaching the lake or shoreline wetlands.
- **Branford Citizens for Responsible Development** Review of development plans for Costco Store and other commercial development on 45 acres in Branford, CT. Review focuses on stormwater management issues particularly increased runoff volumes and pollutant loads to be generated by development and whether the proposed stormwater management proposal would adequately address the impacts of these two issues. Both the 2004 CT DEP Storm Water Quality Manual and the Branford Inland Wetland Regulations were used to determine if the plans were compliant with the applicable standards. The erosion control plan was evaluated for compliance with the CT DEP 2002 Guidelines for Soil Erosion & Sediment Control. Project withdrawn and not resubmitted.
- Save our Shelton Review of development plans for large-scale mixed-use development on 120+ acre site on Bridgeport Avenue. Site contained core forest and high-quality wetland/watercourse systems. Review focused on stormwater management issues, particularly increased runoff volumes and pollutant loads to be generated by development and whether the proposed stormwater management proposal would adequately address the impacts of these two issues. Both the 2004 CT DEP Storm Water Quality Manual and the Shelton Inland Wetland and Stormwater Regulations were used to determine if the plans were compliant with the applicable standards. The erosion control plan was evaluated for compliance with the CT DEP 2002 Guidelines for Soil Erosion & Sediment Control. Project still in land use process.
- Concerned Citizen Group Roxbury, CT Review of proposed residential 12-lot subdivision on steeply sloping site with high quality wetlands and watercourses. Review of all aspects of civil engineering (site layout, grading, erosion/sediment control, stormwater management, stream crossing methodology) using the CT DEP 2004 Storm Water Quality Manual and CT DEP 2002 Guidelines for Soil Erosion and Sediment Control as well as the Town of Roxbury land use regulations and ordinances and evaluate impacts to wetlands and watercourses. Stormwater management system and erosion control plans were found to be inadequate to protect the high-quality wetlands and watercourses from adverse impacts by the Inland Wetlands Commission. Project denied by Inland Wetlands Commission citing findings from the Trinkaus Engineering, LLC review and other consultants.
- **Par Arbors, LLC Bloomfield, CT –** Review of truck storage and dispatch center on agricultural land with numerous delineated inland wetland/watercourses on the site. Focus of review was on stormwater management and the adverse effects of increased pollutant loads and runoff volumes on wetland. Also review adequacy of erosion control plans. Provided testimony at two public hearings in front of Inland Wetlands Commission. Application to conduct regulated activities was denied by the commission in July 2019.
- Town of Brooklyn Perform review of stormwater management design with regard to addressing water quality, runoff volume and downstream impacts of a 51-unit condominium project. Provide suggestions to design engineer to implement comments in review letter.
- Friends of the Lake Enfield, CT Perform third-party civil engineering review of proposed 819,000 square truck warehouse/distribution center with a focus on impacts of increased runoff volumes and water quality from a high-pollutant load site. Prepare written report and provide testimony in front of Planning and Zoning Commission.

- Newtown Neighbors Newtown, CT Perform third-party civil engineering review of proposed 340,000 square truck warehouse/distribution center with a focus on impacts of increased runoff volumes and water quality from a high-pollutant load site. Prepare written report and provide testimony in front of Planning and Zoning Commission.
- Town of Mansfield Mansfield, CT Perform third-party civil engineering review of alterations to existing car dealership to allow for the construction three new restaurants and retail space. Review encompassed all civil engineering aspects of plan. Prepare written report for submission to Inland Wetlands Agency.

Ground Mounted Solar Arrays

- Lodestar Energy Winchester, CT: Performed all civil engineering for an eight-acre solar array on 100-acre parcel. This work included the access driveway, two wetland crossings and the design of a stormwater management system for the project. Notable aspects include: All solar panels are considered impervious area, Soil Class for hydrologic model was dropped down by 1 to account for compaction by the movement of vehicles, grass swales with check dams were proposed on the two sides of the array to collect runoff and convey to a constructed wetland basin which met the requirements of the channel protection volume (DEP Manual). All designed comprehensive erosion and sedimentation control plan with multiple phases. The design of the erosion control plans and stormwater management plans exceed the requirements found in the CT DEP 2004 Storm Water Quality Manual and the CT DEP 2002 Guidelines for Soil Erosion and Sediment Control.
- **GRE Waterford, CT:** Retained by Save-the-River, Save-the-Hills to review the erosion control plan and stormwater management plan on an environmentally sensitive site with runoff being directed to cold-water fishery streams which support native trout populations and drain to Niantic River. Provide civil engineering technical review in pre-filed testimony to Connecticut Siting Council and testify at Siting Council public hearing on application.
- **GRE East Lyme, CT**: Retained by adjacent property owner to evaluate stormwater impacts from 30 acres ground mounted solar array in legal case for adverse impacts to wetlands and watercourses. Finding showed that runoff from the site was significantly under-estimated by the design professional as the panels were not considered impervious and the changes to soil conditions due to regrading were not considered in the design which resulted in the failure of the stormwater basins during construction as well as after the construction was complete.
- Other Ground Mounted Solar Projects: I have also reviewed the erosion and stormwater management plans for ground mounted arrays in Old Lyme, Brooklyn/Canterbury, New Milford, North Stonington, and East Hampton for compliance with the standards found in the CT DEP 2004 Storm Water Quality Manual. In all cases, the stormwater management designs were not in compliance with the DEP Manual.

Commercial Site Plans

- Cannondale Corporation Headquarters Bethel, Connecticut
- Village Bank Headquarters Danbury, Connecticut
- Newtown Hardware Newtown, Connecticut
- Amicus Healthcare Living Centers Rocky Hill, Connecticut
- Nathan Hale Office Building Fairfield, Connecticut
- Ridgefield Recreation Center Ridgefield, Connecticut
- Silver Spring Country Clubhouse & Pool house renovations Ridgefield, Connecticut

Multi-family Projects

- 64 Wooster Street 12-unit affordable housing project Bethel, Connecticut
- 91 Wooster Street 13-unit affordable housing project Bethel, Connecticut
- 49 Taylor Avenue 18-unit affordable housing project Bethel, Connecticut
- 47 Shelly Road 9-unit affordable housing project served by private company and on-site sewage disposal systems Bethel, Connecticut
- 1315 Washington Boulevard 180-unit affordable housing project Stamford, Connecticut

On-site sewage disposal systems

- **Candle Hill Mobile Home Park** Design Subsurface Sewage Disposal Systems for individual mobile home units. New Milford, Connecticut.
- Hemlock Hills Camp Resort Expansion of campground, design of gravity sanitary sewer and design of subsurface sewage disposal system to handle 4,800 gpd. Litchfield, Connecticut.
- Old Field Condominiums long term inspection & reporting on the condition of multiple subsurface sewage disposal systems serving 40 unit condominium complex with design flows in excess of 15,000 gpd. Southbury, Connecticut.
- **Thorncrest Farm** Design of on-site sewage disposal system to handle wastewater from milking operation. Goshen, Connecticut.
- Silver Spring Country Club Design of multiple subsurface sewage disposal systems for private country club with average daily flow of 7,000 gpd during peak usage season.
- **Richter Park Golf Course** Design subsurface sewage disposal system to replace existing failed system for golf club house and year round restaurant with average daily flow of just under 5,000 gpd.
- **Redding Country Club** Performed soil testing to design a repair to an existing wastewater management system that was experiencing periodic effluent discharges during high use on very marginal soil conditions. Utilized oversized grease tanks for kitchen waste and septic tanks to increase the clarity of the effluent which was discharged by force main to the subsurface sewage disposal system increase the long term functionality of the system. Discharge rate 4,900 gpd.

General Civil Engineering Projects

- Montgomery Residence, 10,000 sq.ft. residence with 2.5 acre pond, Redding, Connecticut.
- Neils Different, Design 1 acre pond, Ridgefield, Connecticut.
- Anthony DeLuca, Design 2 acre pond, Redding, Connecticut.
- Barrett Cram, Design 0.5 acre pond, Redding, Connecticut.
- Jay & Eileen Walker Residence, 27,000 sq.ft. residence, Ridgefield, Connecticut.

Athletic Facilities

- Kingdome East Fishkill, NY, Prepare comprehensive site plan for the construction of an airsupported structure covering 7.96 acres of land area. Project also includes the design of 303 parking spaces, two full size artificial turf baseball fields and three 54-80 artificial turf baseball fields. Designed all site grading and stormwater management facilities to address water quality volume, channel protection volume as well as peak rate attenuation for the 1-yr, 2-yr, 10-yr, 25-yr, 50-yr and 100-yr rainfall events.
- **Tiger Hollow Ridgefield High School Phase I**, Design and site artificial turf competition field and track complex. Design access road to provide access to new building containing locker rooms,

concessions, media room, and equipment storage areas. Design all utility connections and obtain local permits.

- **Tiger Hollow Ridgefield High School Phase II**, Prepare Conceptual Development plan for reconfiguration of existing athletic fields adjacent to the Tiger Hollow stadium.
- Joel Barlow High School Redding, CT, Provide preliminary Master Plan on pro bono basis for reconfiguration and improvement of existing athletic fields at Joel Barlow in response to Falcon Pride stadium proposal. Plan was provided to Region 9 Board of Education for general discussion purposes.

Exhibit B to Affidavit of Steven D. Trinkaus, PE



Trinkaus Engineering, LLC 114 Hunters Ridge Road Southbury, Connecticut 06488 203-264-4558 (office) +1-203-525-5153 (mobile) E-mail: <u>strinkaus@earthlink.net</u> http://www.trinkausengineering.com

January 29, 2023

Ms. Mary Miller, Esq. Reid and Riege, P.C. 234 Church Street 9th Floor New Haven, Connecticut 06510

> Re: Silicon Ranch Corporation Wilson Road Litchfield, Connecticut

Dear Attorney Miller,

At your request, I have reviewed the following documents and plans for the proposed solar array and for compliance with the following CT DEP Guidelines which are required for the General Permit for the discharge of stormwater associated with Construction Activities from the CT DEEP.

Executive Summary:

- I. The analysis and design of all stormwater management systems are not in compliance with the 2004 Manual.
- II. The stormwater management analysis for post-development conditions is significantly under-estimating the peak rate and runoff volume as the solar panels are not being considered impervious.
- III. The Erosion control plan is not in compliance with the 2002 Guidelines and will not protect the downgradient upland and/or delineated wetland areas.
- IV. The current proposal is not suitable for coverage under the General Permit in my professional opinion for the many reasons set forth below. Based upon my experience with other solar arrays (both as a designer and reviewer), contractors working on large ground mounted solar arrays do not follow the requirements of the General Permit.
- V. It is highly likely that the contractors will disturb more than five acres at one time (the limit under the General Permit) and thus this project needs to obtain and Individual Permit from the CT DEEP.

Documents Reviewed:

A. Contract Drawing for Silicon Ranch Corporation – Litchfield Solar – Site Civil Design by HDR, revised to 12/1/22.

- B. Drainage Calculations Litchfield Civil Design Silicon Ranch Corporation revised to 12/1/22
- C. CT DEP 2002 Guidelines for Soil Erosion and Sediment Control (2002 Guidelines)
- D. CT DEP 2004 Storm Water Quality Manual (2004 Manual)

Drainage Calculations:

Section 2.1. Water Quality

- 1. Simply providing the water quality volume does not equate to treatment of the Water Quality Volume (WQV). No computations have been provided to show that the WQV is being held in a basin below the lowest outlet invert. This information is missing.
- 2. As noted below, the sediment forebays are not in compliance with the 2004 Manual. The wet swales on the plans do not have forebays, they have an area of riprap only.
- 3. It is stated that the sediment basins will remove 90% of Total Suspended Solids (TSS) according to the SEDCAD model. The SEDCAD model is only applicable to the trapping of TSS during the active construction period by sediment traps or basins. So the stated removal rate of 90% is only applicable to the active construction period. It is not applicable to the TSS removal under post-development conditions. The CT DEEP goal is 80% TSS removal from post-development runoff, which is not the same thing as during the construction period.

Appendix B

4. Only four of the fourteen infiltration tests performed by Terracon meet the minimum criteria found in the 2004 Manual for infiltration practices. However, stormwater practices with a permanent pool (as proposed for many of the basins) will not infiltrate because the bottom of the basins are below the seasonal high groundwater table and water will not infiltrate into a saturated zone.

Appendix C

5. The summary results for post-development conditions are not correct because the results assume that none of the solar panels are considered impervious, which is not the case. Therefore, post-development peak rates and runoff volumes are significantly underestimated. As the basin designs are based upon this data, the basins will fail causing direct discharges to downgradient wetland and watercourse systems.

Appendix D

6. The Runoff Curve Numbers (RCN) computations consider the solar panels to be impervious for only the water quality storm as requested by CT DEEP. However, for all other rainfall events, the solar panels are not considered impervious. This is wrong and does not conform to standard civil engineering approaches. Above ground solar panels or the roof of a carport prevent rainfall from impacting the ground underneath, thus the solar panels must be considered impervious for all post-development analyses. By not considering the solar panels impervious, both the peak rates and volumes of runoff for post-development conditions are under-estimated by up to 40% which means that all the stormwater basins are undersized.

Appendix G

- 7. The SEDCAD analysis uses a particle size distribution of some type of soil, which has not been defined in the report. It is not clear whether the particle size distribution is based on actual soil samples taken from the site or just estimated from the model.
- 8. The SEDCAD model has not been used in Connecticut based upon my forty years of practice, so the CT DEEP needs to thoroughly investigate and confirm the accuracy of the SEDCAD model before blindly accepting the model results.
- 9. Routing analysis for the ESC Basins were done using HydroCAD with the same outlet systems as for the permanent stormwater basins. This is incorrect as the outlet from a sediment basin is a different system that the post-development basin control system. These results are not valid for the reason noted above.
- 10. The source of the value "L= 13 LF for every 1 cfs of flow" for the design of the Outlet Level Spreader Calculations is not clear.

Appendix I

- 11. It is stated that the WQV will infiltrate through the bottom of all of the stormwater management practices. This statement has not been proven by computations and thus it cannot be accepted as true that the WQV will infiltrate.
- 12. There are no computations (elevation/area/volume) which demonstrate that 10% of the WQV is being provided in each of the forebays and that 100% of the WQV is being provided in the bottom of each basin.

Civil Drawings:

Sheet C002 – Civil Notes

- 13. The area for each phase of site disturbance has not been identified on this plan. Per the CT General Permit, site disturbance in each phase must be five (5) acres or less and each disturbance area must be stabilized with permanent vegetative cover prior to disturbing the next phase.
- 14. It is noted that 60,640 cubic yards will be excavated on the site with 19,762 cubic yards to be filled. This results in a net cut of 40,878 cubic yards which must be removed from the site. There no provisions for how and when this material will be removed from the site. Assuming 15 cubic yards per dump truck, it will take 2,752 round trips to get the material and remove from the site. If one assumes 20 loads per day, it will take 136 days (27 weeks at five days/week) to complete the material removal. If only 10 loads per day are done, it will take 275 days (55 weeks at five days/week). The process to remove this material must be addressed in the General Permit and has not been.

Sheet C003 - Environmental Notes

- 15. The fifth paragraph in the first column talks about the importance of the contractors to comply with the erosion plan and measures, but includes no plan for how this requirement will be enforced.
- 16. Subsection "d" in column two talks about that the contractor will be responsible for daily inspections of erosion control measures. Based upon my experience, the contractors which would on large ground mounted solar arrays are not capable of performing these inspections. All erosion inspections must be done by a qualified professional engineer.
- 17. Subsection "f" states that additional erosion materials will be kept on site, but no amounts of the different control measures are stated which makes this section unenforceable.

Sheet C102 – Existing Site Conditions and Topography

18. This plan has not been signed by the licensed land surveyor who is responsible for its preparation. It has also not been signed by the certified soil scientist who delineated the inland wetlands and watercourses. Map references on sheet C002 do not state who the licensed land surveyor of record is. This is a requirement for mapping under the GP.

Sheet C401 – Array Grading and Drainage Plan 1

- 19. The outlet from Pond 9 discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 20. The outlet from Pond 5 discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 21. No check dams are shown for Ditch 8/10 North. Check dams are required for any swale when the slope of the swale is greater than 6%. Swale is not in compliance with 2002 Guidelines.
- 22. No check dams are shown for Ditch 5. Check dams are required for any swale when the slope of the swale is greater than 6%. Swale is not in compliance with 2002 Guidelines.
- 23. No check dams are shown for Ditch 9. Check dams are required for any swale when the slope of the swale is greater than 6%. Swale is not in compliance with 2002 Guidelines.

Sheet C402 – Array Grading and Drainage Plan 2

- 24. There is no outlet from Pond 12, which means that there is nowhere for the discharge to go.
- 25. The outlet from Pond 8/10 discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 26. The outlet from Pond 13 discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 27. The outlet from Pond 7 discharges at the top of a very steep, which will be created by filling. The discharge will erode this fill slope.
- 28. The outlet from Pond 3 discharges at the top of a moderately steep, greater than 10% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 29. The outlet from Pond 1 discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.

- 30. The outlet from Pond 2B discharges at the top of a very steep, greater than 15% slope. At the current time, this slope only sees overland flow and not concentrated flow and the discharge will cause erosion of the steep slope and eroded material will reach the downgradient wetland area.
- 31. No check dams are shown for Ditch which enters Pond 2A. Check dams are required for any swale when the slope of the swale is greater than 6%. Swale is not in compliance with 2002 Guidelines.
- 32. No check dams are shown for Ditch which enters Pond 2B. Check dams are required for any swale when the slope of the swale is greater than 6%. Swale is not in compliance with 2002 Guidelines.

Sheet C403 – Access Road Profiles 1

33. There is no indication that the sections of the access roads with vertical grades greater than 6% will be paved. If the surfaces are to be gravel, they will constantly erode.

Sheet C404 – Access Road Profiles 2

- 34. There is no indication that the sections of the access roads with vertical grades greater than 6% will be paved. If the surfaces are to be gravel, they will constantly erode.
- 35. A large section of the access road (roughly 500' in length) will have grade of 16.85%. This is excessively steep for the movement of motor vehicles and there is no indication of how the runoff from this steep section will be handled.

Sheet C405 – Access Road Profiles 3

36. There is no indication that the sections of the access roads with vertical grades greater than 6% will be paved. If the surfaces are to be gravel, they will constantly erode.

Sheet C406 - Access Road Profiles 4

37. There is no indication that the sections of the access roads which have vertical grades greater than 6% will be paved. If the surfaces are to be gravel, they will constantly erode.

Sheet C420 - Pond 1

- 38. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 39. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 40. The forebay is only one foot in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 41. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 42. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C420 - Pond 2A

43. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.

- 44. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 45. The forebay is only three feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 46. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 47. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C421 - Pond 2B

- 48. There is no provision for conveying runoff from forebay to main basin.
- 49. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 50. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 51. The forebay is only one foot in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 52. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 53. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C422 – Pond 3

- 54. There is only a partial swale from the forebay to the main basin to convey runoff. Without a stable path from the forebay to the bottom of the main basin erosion of the slope will occur.
- 55. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay,
- 56. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 57. The forebay is only two feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 58. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 59. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C423 – Pond 5

- 60. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 61. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.

- 62. The forebay is only two feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 63. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 64. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C424 – Pond 7

- 65. Forebay is lined with modified riprap, but there is no indication of how sediment be will be removed from the forebay,
- 66. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 67. The forebay is only three in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 68. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.
- 69. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 70. The discharge from Pond 7 will be onto a man-made 3:1 fill slope which will be highly susceptible for erosion due to the discharge.

Sheet C425 and C426 – Pond 8/10

- 71. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay,
- 72. There is only a partial swale from the forebay to the main basin to convey runoff. Without a stable path from the forebay to the bottom of the main basin erosion of the slope will occur.
- 73. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 74. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 75. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C427 – Pond 9

- 76. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 77. There is only a partial swale from the forebay to the main basin to convey runoff. Without a stable path from the forebay to the bottom of the main basin erosion of the slope will occur.
- 78. It appears that the emergency spillways will provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm.

- 79. The forebay is only two feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 80. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 81. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C420 - Pond 1

- 82. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 83. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 84. The forebay is only one foot in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 85. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 86. The basin design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C428 & C429 – Pond 13

- 87. Forebay is lined with modified riprap, but there is no indication of how sediment will be removed from the forebay.
- 88. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 89. The forebay is only two feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.
- 90. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 91. The outlet from Pond 13 is at the top of a moderately steep flow which currently only experiences overland flow. The concentrated flow will cause erosion of the undisturbed slope below the outlet.
- 92. The design of this basin does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C430 – Pocket Pond 12

- 93. Forebay is lined with modified riprap, but there is no indication of how sediment be removed from the forebay.
- 94. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 95. The forebay is only two feet in depth and the 2004 Manual requires a minimum depth of four feet. Therefore, the forebay is not in compliance with Manual.

- 96. Emergency spillways are not lined with riprap of an appropriate diameter to ensure nonerosive velocities and do not extend down the face of the basin to an undisturbed soil surface.
- 97. The design of the Pocket Pond does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C431 – Wet Swale 11

- 98. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not appear to meet this criteria.
- 99. The wet swale design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheet C432 – Wet Swale 14

- 100. Emergency spillways must provide a 12" freeboard between the top of the water surface for the 100-year storm and the top of the berm. This basin does not meet this criteria.
- 101. The wet swale design does not conform to any of the stormwater management practices found in the 2004 Manual.

Sheets C501, C502, C503, and C504 – Erosion and Sedimentation Control Phase 1 and 2

- 102. Siltation fence barriers and compost filter socks are shown perpendicular to contours in many locations. This is wrong and not in compliance with 2002 Guidelines. Erosion control measures must be installed parallel to contours with up-turned ends as needed.
- 103. There are only single perimeter erosion control measures which are completely inadequate to protect downgradient undisturbed areas from turbid runoff during the active construction period. The long and in many cases moderate to steep slopes will be subject to rill and gully erosion which will easily overwhelm the perimeter barriers. This is exactly what has occurred in East Lyme and Waterford solar arrays.
- 104. It is proposed to use post-development stormwater basins as temporary sediment basins, but no narrative has been found explaining how the basins will be restored after being used as temporary sediment basins which is required to be addressed.
- 105. The construction sequence provided on this plan and other sheets does not comply with the form and content required by the 2002 Guidelines.

Sheet C505 – Erosion and Sediment Control Details 1

- 106. The Permanent Outfall Protection shows what is called a Pre-formed Scour Hole. However, this type of outlet protection is not shown on the site plans.
- 107. The Temporary Check Dam detail consisting of staked hay bales is incorrect as it does not show the hay bales being set into the ground. Additionally, this detail is from the Town of Stonington.

Sheet C506 – Erosion and Sediment Control Details 2

108. The detail for the Permanent Conveyance Ditch does not provide what the velocities will be for the design flow from the ten-year storm. Based upon a quick

analysis using the channel analysis function in AutoCAD, almost all of these ditches will have flow velocities which are greater than 2.0 to 3.0 feet per second. With higher flow velocities, erosion of the ditches will occur.

- 109. There are no computations for sizing of the temporary sediment basins per the 2002 Guidelines.
- Sheet C507 Erosion and Sediment Control Details 3
 - 110. The table for the Permanent Detention Pond is for a Dry Detention Basin which are considered a Secondary Practice under the 2004 Manual as they are not effective at reducing non-point source pollutant loads.
 - 111. As the lowest outlet orifice is located above the bottom of the basin, there will be a permanent pool of some depth always in the basin, thus they cannot be considered a Dry Detention basin.
 - 112. The Dimension Chart clearly shows that the emergency spillways will not provide a minimum 12" freeboard from the top of the water surface for the 100-year storm to the top of the berm, thus the basin designs to do meet minimum civil engineering design standards for detention ponds.

Sheet C509 – Erosion and Sediment Control Details 5

- 113. The proposed Wet Swales shown on the site plan do not conform to the detail of the Permanent Wet Swale shown on this plan. The proposed wet swales are not in compliance with 2004 Manual.
- Sheet C550 Construction Phasing
 - 114. The plan shows each area to be disturbed at a given time. The order of disturbance shown on this plan must be called out. Simply being seeded does not constitute stabilization under the 2002 Guidelines. Grass cover must be established over a minimum of 75% of the disturbed area to be considered stabilized. It generally takes two growing seasons for broadcast seeding to become fully established on a site. It is my professional opinion that the applicant will not follow this requirement, thus resulting in more than five acres being disturbed and not stabilized at one time and this is the primary reason while a General Permit is not applicable for this project and it must be permitted under and Individual Permit from the CT DEEP.

Sheet C700 – Site Access Plan & Civil Details

- 115. The detail for the Gravel Level Spreader will not function as a level spreader as the downhill edge consists of crushed stone against the soil. The placement of the stone will naturally create high and low spots against the soil interface which will cause concentrated flow to occur at multiple points along the level spreader.
- 116. Note #4 for this detail states that these trenches will be maintained and repaired on a weekly basis. This provision must be daily if the trenches are to be used.
- 117. As noted elsewhere in this plan set, the gravel level spreaders are to be installed along contours at roughly 100' intervals. These spreaders will be very difficult to install dead level along a contour line and will not slow runoff down or eliminate concentrated flow from the array of the soil array. It will be impossible to install these gravel trenches, which are not considered level spreaders dead level along existing contours as the ground

surface is inherently uneven. There will be high and low spots between the gravel and the native soil on the downhill side of the trench which will result in runoff finding the lowest point and discharging as concentrated flow at this point and not along the entire length of the gravel trench. #57 stone as called out in the detail is an average size of $\frac{3}{4}$ " or so which when gravel level will create a virtually smooth surface in the gravel trench so that runoff from the disturbed above the gravel trench will simply flow right across it and will not slow down and the surface will provide minimal, if any resistance to the runoff due to the small stone size.

Please contact my office if you have any questions concerning this information.

Respectfully submitted, Trinkaus Engineering, LLC

Sten D Terinkans

Steven D. Trinkaus, PE

EXHIBIT 4

STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL AND ENERGY PROTECTION

IN THE MATTER OF:

APPLICATION NO.: 202207386

SR LITCHFIELD, LLC SR Litchfield Site Town Farm Road, Torrington, CT

FEBRUARY <u>//</u>, 2023

AFFIDAVIT OF MICHAEL W. KLEMENS, PhD

The undersigned being duly sworn does hereby depose and say:

1. I am over the age of eighteen, understand the meaning and obligation of an oath, and am competent to testify as to the matters stated herein.

2. I make this Affidavit on personal knowledge.

3. My name is Michael W. Klemens, principal of Michael W. Klemens, LLC.

4. I am a conservation biologist with more than 40 years of experience and I focus on the inter-disciplinary interface between science, land-use decision making, and public policy. My resume is attached. (*See* Exhibit 1.)

5. SR Litchfield, LLC (the "Applicant") submitted materials to the Connecticut Siting Council (*see* CSC Petition 1442), with respect to its proposed solar project in Litchfield and Torrington (the "Project"), which the petitioners in the above-captioned proceeding asked me to review.

6. In addition, I have previously conducted considerable review of several other projects in the nearby vicinity, which has led me to conclude that this overall area (including the Project's location) contains gravelly soils and seepage outbreaks, and that the Project is located on steep gradients.

7. It is my professional opinion that the Project is reasonably likely to cause

unreasonable harm to the water quality, hydrological integrity, and the biodiversity of the Gulf Stream watershed. The Gulf Stream serves as critical headwaters to the Naugatuck River.

8. It is now well understood that the manner in which certain industrial solar fields are placed within Connecticut has caused catastrophic storm water failures and has contributed to the fragmentation and degradation of wetlands, vernal pools, and the loss of biodiversity and core forests (*see* Klemens, et al., *Conservation of Amphibians and Reptiles of Connecticut*, published by the DEEP in 2021).

9. My review focused on the Project site's vernal pools, seepages and tributary streams, all of which share an ecological nexus.

10. The Project severely impacts vernal pools. The Applicant incorrectly assumes that the terrestrial habitat under the solar arrays was equivalent in value to forest, scrub and/or hayfields. In reality, this is not the case, and placement of the arrays will greatly alter and diminish the habitat below them, resulting in a greatly altered vegetation community as well as a very different hydrology (that latter will be discussed in greater detail by Mr. Trinkaus).

11. The entire network of seepages and streams are of high quality and high conservation value, as indicated by the presence of dusky salamanders and other aquatic parameters.

12. Cold, high quality, seepage-fed streams and headwaters are a critical hydrological resource in Connecticut. In this period of climatic change, ground water fed wetlands ameliorate the effects of both drought and the warming of surface waters, thereby serving as a refuge for cold water aquatic species.

13. In general, the ecological footprint of a solar farm is many orders of magnitude greater than its built footprint; in other words, the area of environmental impact of the Project is far greater than its developed land area. This is particularly relevant in this case, because the degradation of water resources caused by the Project will affect a significant part of the downstream Gulf Stream drainage.

14. My experience working downstream on three separate projects (between the Project and Route 202 and between Route 202 and Clark Road) has led me to conclude that the Project is part of a network of breakouts, seepages, and streams that are connected by a large amount of subterranean water flow. Not only are these breakouts and seepages hydrologically connected, it is quite plausible that biota such as dusky salamanders and various invertebrates are moving underground between these areas.

15. I strongly urge the DEEP to examine the Project from an ecological perspective and to deny it the necessary permits to continue its development. The Project will cause unreasonable harm to the environment based on its location with regard to the watershed, and its ecological and hydrological complexity.

Michael W. Klemens

Subscribed and sworn to before me this / 1/2 day of February, 2023.

Commissioner of the Superior Court / Notary Public My commission expires: JENNY ELIZABETH WATROUS

NOTARY PUBLIC MY COMMISSION EXPIRES AUG. 31, 2026
Exhibit 1 to Affidavit of Michael W. Klemens, PhD

MICHAEL W. KLEMENS

POB 432 Falls Village, CT 06031 203-448-8068 fenbois@aol.com

EDUCATION

PhD Ecology/Conservation Biology

University of Kent at Canterbury, U.K. (1990) Dissertation: The herpetofauna of southwestern New England.

MSc Zoology

University of Connecticut (1978) Thesis: Variation and distribution of the turtle, <u>Chrysemys picta</u> (Schneider) in Connecticut.

BSc Education

University of Connecticut (1975)

CONSERVATION, RESEARCH, AND EDUCATION POSTS

Adirondack Wild: Friends of the Forest Preserve Consulting Conservation Biologist, March 2011-April 2013 Landscape Conservation Advisor May 2013-present

Adirondack Wild advocates for the core wilderness values of one of the Northeast's largest intact forests. Dr. Klemens provided expert testimony on behalf of Adirondack Wild in an adjudicatory hearing concerning the largest-ever proposed resort within the Adirondack Park and in conjunction with that testimony conducted rapid biological assessments of streams and wetlands. He is continuing his role as conservation science advisor to this advocacy group, integrating conservation biology to their efforts to protect the biological integrity and wilderness values of the Adirondack Park.

Cary Institute of Ecosystem Studies

Research and Policy Conservationist & Founding Director, Metropolitan Conservation Alliance, July 1, 2008-June 30, 2011

Effective July 1, 2008, the Metropolitan Conservation Alliance (MCA) moved from WCS to the Cary Institute of Ecosystem studies where MCA provides leadership and education to communities in the New York's Hudson valley, Adirondack region, and Connecticut on the integration of complex ecological information into the local land-use decision-making process. MCA produces multi-town biodiversity conservation strategies

and best development and management practices, using scientific information as the under-pinning of policy recommendations. MCA works with communities to implement those strategies into their local land use practices capitalizing on the broad authority available to local jurisdictions devolved from the state land-use enabling legislation.

Scenic Hudson

Director of Conservation Science, 2007—April 2008 Conservation Science Advisor, April 2008--current

Responsibilities include the scientific accuracy of the organization's core programs of land use advocacy, land acquisition, parks, and policy as well as representing the organization at the regional level concerning issues and opportunities of biodiversity conservation. Developed adaptive, precautionary strategies to address climate change in the Hudson Valley. These adaptive strategies included climate change precautionary zoning, brown-field mitigation, and carbon footprint reduction.

Wildlife Conservation Society (WCS)

Senior Conservationist, 2002–June 30, 2008 &

Founding Director, Metropolitan Conservation Alliance, 1998-June 30, 2008. The Metropolitan Conservation Alliance (MCA) provides leadership and education to more than 89 communities in the New York tri-State area on the integration of complex ecological information into the local land-use decision-making process. MCA produces multi-town biodiversity conservation strategies and works with communities to implement those strategies into their local land use practices through the adoption of innovative best management practices, capitalizing on the broad authority available to local jurisdictions devolved from the state land-use enabling legislation.

Director for Program Development, 1994-1998.

Worked with the various divisions of WCS to produce programs that united field conservation, facilities (i.e., zoo), and veterinary services to address complex field conservation problems. Sought financial support (both corporate and foundation) for these programs and developed methodologies that more equitably divided responsibilities for seeking/reporting on grants between project scientists and the development and financial offices of WCS.

Research Fellow, 1992-1994.

In partnership with the American Museum of Natural History, developed a multi-year program (that continued through 1998) of biodiversity assessment and monitoring in the National Parks of Tanzania. This program received multi-year consecutive funding from the John D. and Catherine T. Mac Arthur Foundation. The goals of the program were to build national capacity in biodiversity assessment, specimen collection, and data management. This program was conducted in partnership with the University of Dar es Salaam and several Tanzanian government agencies charged with wildlife and parks management. The program also provided academic training to promising Tanzanian nationals and professional development opportunities for faculty at the University of Dar es Salaam. This program was expanded to train MSc level students in the UK through the Darwin Initiative at the University of Kent. This joint program of the University of

Kent and WCS selected promising students from WCS field sites in three African nations, Malagasy Republic, Tanzania, and Zaire. A total of nine students received scholarships to attend university in the UK through the Darwin Initiative component of the program.

American Museum of Natural History (AMNH)

Research Associate in Herpetology, May 1994-current.

After leaving AMNH to join WCS, I continued my strong relationship with the Museum, including biodiversity assessment and expeditionary studies in Africa and the eastern United States, which resulted in significant collections of more than 18,000 specimens that have been added to the permanent research collections. Publications focus on African amphibians, biogeography and conservation of northeastern US amphibians and reptiles, and biochemical studies of polyploid and unisexual salamanders.

Director, Special Projects, Center for Biodiversity and Conservation, 1993-1994 & Director, Environmental Initiatives, 1990-1993.

Envisioned and created the Museum's Center for Biodiversity and Conservation to make available to policy and decision-making, as well as public information, the accumulated data contained in more than 30 million samples of biodiversity collected around the globe. Worked with Museum scientists to enable them to become disseminators of that data, to secure funding for these endeavors, and to maintain the scientific integrity of the information while recognizing that the requirements for information to inform decisionmaking is at times different from that of more traditional scientific inquiry. Since its inception, the Center has continued to be a voice for biodiversity conservation, treading carefully the interface between scholarly investigation and the need for scientific engagement in the ever-growing biodiversity crisis.

Senior Scientific Assistant/Scientific Assistant, Herpetology, 1979-1989.

Joining the AMNH as a technical officer in 1979, my responsibilities were assisting curators in their research and the management (cataloging and data retrieval) of the preserved collection of amphibians and reptiles, which at that time included about 300,000 specimens.

Michael W. Klemens, LLC

Managing Director, 2002-current.

Provides technical services on a for-profit basis to NGO's, government agencies, municipalities, and private entities on the integration of biodiversity conservation and best management practices as they pertain to land-use decision making and ecologicallyappropriate (i.e., "green") development. Client list available upon request.

Center for Humans and Nature

Senior Consultant, 2007-2008.

Developed a program to link the Consortium of Colleges and University of the Hudson Valley, American Museum of Natural History, New York Historical Society, and the Center for Human and Nature in a multi-year exploration of the cultural norms that underlie our collective relationship with the natural world. The ultimate goal of this

program is to create a forum that will allow communities (broadly defined) to envision their sustainable future free from the traditional encumbrances of positional arguments and pre-conceived outcomes. The project seeks to develop a culture of democratic ecological citizenship through engagement and participation within the Hudson Valley region. Current work with the CHN focuses on a project that examines the interfaces between ecological systems and human economic models.

Pace University, School of Law, Land Use Law Center Course Lecturer, Land Use Leadership Alliance (LULA) Training Program, 1998-current

This innovative program seeks to instill a different culture in land-use decision-making, by making information available to local leaders, and training them in how to use that information in a conflict-neutral manner. My involvement in the program is teaching modules on biodiversity conservation at the local level, integration of sustainable development techniques, and community visioning techniques.

University of Maine, Department of Plant, Soil, and Environmental Sciences

Adjunct Graduate Faculty, 2003-2008 Co-supervising and advising MSc and PhD students.

Columbia University, Center for Environmental Education and Conservation

Research Associate, 1998-2008.

University of Massachusetts, Amherst

Adjunct Assistant Professor, 1996-2002.

IUCN - The World Conservation Union

Editor, <u>Species</u>, Journal of the World Conservation Union, Species Survival Commission, 1999-2000. Vice Chairman, Tortoise and Freshwater Turtle Specialist Group, 1991-1998. *Action Plan Director, Tortoise and Freshwater Turtle Specialist Group,*

1989-1998.

Member, African Amphibian and Reptile Specialist Group, 1992-current. *Member, Repatriation and Relocation Specialist Group,* 1993-current.

University of Kent, Durrell Institute of Conservation and Ecology

Visiting Research Fellow, 1990-1995.

Turtle Recovery Program

Founder/Director, 1989-2000.

Simon's Rock College

Adjunct Faculty, 1986-1988.

Massachusetts Division of Fisheries and Wildlife

Cooperating Wildlife Researcher, 1984-1990.

United States Department of the Interior, National Park Service Herpetologist, Roosevelt-Vanderbilt National Historic Site, 1988.

University of Michigan, Museum of Zoology Curatorial Assistant, 1978-1979.

University of Connecticut, Museum of Natural History Curatorial Assistant, 1975-1978.

Town of Vernon, Connecticut

Environmental Educator, Valley Falls Park, 1975-1977.

CURRENT AND FORMER APPOINTMENTS: COMMISSIONS, BOARDS & PANELS

State of Connecticut, Connecticut Siting Council Gubernatorial appointment October 2013-May 2019

State of Connecticut, Council on Environmental Quality

Gubernatorial appointment April 2013-2015

State of Connecticut Department of Environmental Protection

Non-harvested Wildlife--Amphibian and Reptile Expert Advisory Committee

Town of Salisbury, Connecticut Planning and Zoning Commission Elected (municipal elections) November 2007

Chairman -November 2010--present

Westchester Land Trust

Advisory Board

The Bay Foundation and the Josephine Bay Paul and C. Michael Paul Foundation, Inc.

Biodiversity Leadership Awards Elector

The H. John Heinz III Center for Science, Economics and the Environment

Urban and Suburban Work Group Member, Designing a Report on the State of the Nation's Ecosystems Project

New Jersey Highlands Water Protection and Planning Council

New Jersey Landscape Project

Technical Advisory Committee

City of Rye, NY

Chairman, Master Plan Update Task Force, 2000-2003. Chairman, Planning Commission, 1997-2003. Vice Chairman, Planning Commission, 1996-1997. Member, Planning Commission, 1992-1996.

New York League of Conservation Voters, Westchester Chapter Board Board Member, 2000-2001.

American Rivers

Science and Technical Advisory Board, 1992-2001.

Stewart Airport Lands Citizens Advisory Committee (gubernatorial appointment)

1998-1999.

Hudsonia, Ltd.

Board of Directors, 1995-1999.

The Jay Heritage Center, Rye, New York

Interpretive Planning Panel, 1998.

Westchester Land Trust

Board of Directors, 1997-1999.

PROFESSIONAL DISTINCTIONS

Herpetological Journal Editorial Board, 1992-1994.

Chelonian Conservation and Biology *Editorial Board*, 1993-2006.

Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, 2000 Conference Co-organizer, 2000.

Society for the Study of Amphibians and Reptiles Conservation Committee Chairman, 1998-1999.

Land Use Law Center, Pace University School of Law Community Leadership Alliance Graduate, 1997.

Catalogue of American Amphibians and Reptiles Editor, <u>Testudines</u>, 1991-1994.

Conservation, Restoration, and Management of Tortoises and Turtles-An International Conference

Chairman and Conference Organizer, 1993.

AWARDS & TRIBUTES

Friends of Hudsonia-Dover NY

2010 Award for two decades of assistance to the Town of Dover in assessing and protecting their biological resources.

American Planning Association, Connecticut Chapter

2007 Award for excellence in "integrating complex ecological processes into local land-use decisions.

Resolution from the City of Rye

Commending Michael Klemens for his service to the City (Conservation Commission Advisory Committee/Planning Commission/Chair of Planning Commission.) March 10, 2004.

Office of the County Executive Certificate of Appreciation

Westchester County, October 2003. In grateful appreciation for service rendered to the County of Westchester.

Science and Technical Advisory Committee Achievement Award

American Rivers, October 2001. In recognition of outstanding contribution and commitment to river conservation.

21 New Yorkers to Watch in the 21st Century *Daily News, January 1, 2000, p. 22.*

Orange Environment Award November 13, 1999.

The Edith G. Read Conservation Award

For drafting Rye City's Wetlands Ordinance, 1991.

The Nature Conservancy, Connecticut Chapter Recipient, White Oak Award for Conservation Research, 1980.

American Museum of Natural History

Associate Patron

PUBLICATIONS

- Klemens, M. W., H.J. Gruner, D. P. Quinn, and E.R. Davison. 2021. Conservation of Amphibians and Reptiles in Connecticut. CT-DEEP i-xix+pp 1-305.
- Klemens, M. W. 2017. Report of the critical habitat inventory for the proposed HouBike Trail between Cornwall Bridge and Kent. Northwest Hills Council of Governments (CT).
- Klemens, M. W. 2017. Pathways to a Connected Adirondack Park: Practical Steps to Better Land Use Decisions. Adirondack Wild (www.adirondackwild.org).
- Klemens, M. W., E. R. Davison, B. K Oko. 2012. Ridgefield Natural Resources Inventory. Ridgefield Conservation Commission pp.1-112.
- Davison, E.R. & M.W. Klemens. 2010. Town of Barkhamsted: Amphibian and Reptile Biodiversity Study. MCA Technical Paper No. 16. Metropolitan Conservation Alliance.
- Davison, E.R. & M.W. Klemens. 2010. Eastern Westchester Biotic Corridor: Northern Terminus Addendum North Salem and Southeast, New York. MCA Technical Paper No 4-C. Metropolitan Conservation Alliance.
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INVITED PAPERS & PRESENTATIONS

Ecological Stewardship: Empowering Communities to Protect the Commons.

Ramapo College of New Jersey April 11, 2013. *Re-invited by popular demand to give the same lecture that was given in February 2012.*

Ecological Sustainability and Economic Development: Can they Work Together? Keynote Address. CACIWC's 35th Annual Meeting and Environmental Conference. Meriden, CT. November 17, 2012.

Ecological Stewardship: Empowering Communities to Protect the Commons. Creating a Sustainable World: Voices of Key Practitioners. Ramapo College of New Jersey. February 23, 2012

Ecological Stewardship and Economic Development: Do We Have To Choose?

Keynote Address, CT Association of Wetland Scientists 14th annual Meeting, North Haven, CT. February 23, 2011

Ecological Thinking: A Toolbox for Landscape Professionals.

NOFA Annual Gathering-Storrs, CT December 7, 2010.

Biodiversity and Land Use Policy at the Urban/Suburban Frontier—Westchester

Copunty (NY).

The Pocantico River Watershed Conservancy at Pace University. September 17,

2012.

Our Land, Air and Water

A Symposium on Sustainable Development and Western Connecticut's Future. Co-moderated by Congressmen Earl Blumenauer (OR) and Christopher Murphy (CT). June 26,2010.

- **Ecological Stewardship and Economic Development: Do We Have to Choose?** Millbrook Garden Club, Millbrook, NY, April 14, 2010
- Eastern Westchester Biotic Corridor: A Ten Year Retrospective: 2000 2010 North Salem Improvement Society, April 11, 2010

Ridgefield's Prospect

Ridgefield Conservation Commission, April 7, 2010

Keynote Address: Ecological Stewardship and Economic Development: Do We Have to Choose?

Cary Institute of Ecosystem Studies, March 6, 2010

Keynote Address: Can We Have Both: Conservation and Economic Development? Mahopac Library, Mahopac NY, February 25, 2010

Ridgefield's Prospect

Ridgefield Garden Club, January 26, 2010

Biodiversity Inventory of Headwaters and Vernal Pools: Barkhamsted, CT Barkhamsted, CT January 11 & January 20, 2010

Where the Wet Things Are!!: Citizen Science Vernal Pool Survey Town of Washington, New York, December 2, 2009

Managing the Ecological Footprint: Creating Human Communities in Harmony with Nature

South West Regional Planning Agency (SWRPA)Lecture Series – Stamford Government Center, November 4, 2009

Bridging the Gap Between Conservation Science and Land-use Planning: Where Science Ends and Policy Begins

Connecting our Landscape: A Roundtable on Integrating Connectivity into Land Use Planning, Two Countries-One Forest- Lake Clear, New York, October 5-6, 2009

- **Ecologically-informed Land Use Planning: Local Opportunities and Responsibilities.** 6th Annual Town Board Breakfast, Dutchess Land Conservancy, Millbrook, NY. May 18, 2009.
- Where the Wet Things Are: Citizen-science Vernal Pool Surveys/Public Policy. Town Board of Washington, Washington, NY. February 12, 2009
- Where the Wet Things Are: Citizen-science Vernal Pool Surveys/Public Policy. Cornell Cooperative Extension, Washington, NY. February 9, 2009.

Eastern Westchester Biotic Corridor. Town of Bedford Environmental Summit. Bedford, NY. January 31, 2009.

Status of Amphibians and Reptiles in the Tri-State New York Metro Region.

Highstead Arboretum, Redding, CT. October 18, 2008.

Mediation: Wood Turtle (*Clemmys insculpta*) Research/Conservation and

Agriculture: Great Swamp. Pawling NY August 4, 2008.

Effective Preservation of Biological Communities: Local and Regional Strategies.

Keynote Speaker. Annual Meeting of the Winnakee Land Trust. Norrie Point Environmental Center, Staatsburg, NY. July 30, 2008

Effective Preservation of Biological Communities: Local and Regional Strategies. Lake George Watershed Conference: 4th Annual Forum on Water Quality &

Resource Conservation, Fort William Henry Conference Center, Lake George, NY, June 18, 2008,

Planning and Designing for Biodiversity

Adirondack Research Consortium, 15th Annual Conference on the Adirondacks, Lake Placid, NY May 21-22, 2008.

- Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Address: Planning for Biodiversity: Strategies for Developers and Municipalities sponsored by the Hudson Valley Smart Growth Alliance, Marist College, April 29, 2008.
- Status of Amphibians and Reptiles in the Tri-State New York Metro Region. The Hotchkiss School, Lakeville, CT. February 14, 2008.
- Effective Preservation of Biological Communities: Local and Regional Strategies. Yale University, New Haven, CT. February 5, 2008.
- The North Castle Biodiversity Plan. Town Hall, Armonk, NY. January 9, 2008.
- Planning and Designing for Biodiversity. Bedford-Somers Continuing Education Course for Land-use Decision Makers: Biodiversity Lecture Series. Katonah Library, Katonah, NY. December 6, 2007
- Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Address, Connecticut Association of Inland Wetlands and Conservation Commissions (CACIWC) 30th Annual Meeting and Environmental Conference, Wallingford, CT. November 10, 2007.
- **Keeping Connected: Securing Biodiversity in a Changing Landscape.** New York City Bar Association Annual Conference on Animals and the Law. NY, NY. September 29, 2007.
- Stream Pirates, Clones and Island Hoppers: A Herpetological View of Coastal New England. Henry L. Ferguson Museum. Fishers Island, NY August 19, 2007.

- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use
 Planning. United States Society for Ecological Economics, 4th Biennial
 Conference. Pace University NY City Campus. June 25, 2007.
- The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened and Use Planning in the NYC Watershed. Open Space Institute Lunch Seminar. NY, NY May 9, 2007.
- The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened Land Use Planning in the NYC Watershed. Presented in conjunction with Nature-Network to Ted Kheel and Nurture New York's Nature. NY, NY. May 9, 2007.
- Keynote Address: Dutchess County Planning Federation: Annual Awards Dinner. Bridging the Gap Between Conservation Science and Land-use Planning. Poughkeepsie, NY. April 30, 2007.
- Bedford Biodiversity Study. Bedford Town Hall, Bedford, NY. April 4, 2007.
- Biodiversity Conservation in a Rapidly Developing Environment. Penn State Schuylkill Library. Co-sponsored by the Schuylkill Conservation District, Schuylkill County Sportsmen's Advisory Board, DCNR-Bureau of Forestry, and the Schuylkill County Conservancy. March 28, 2007.
- Local Land Use Planning and Herpetofauna Conservation. NYTTS Seminar, American Museum of Natural History, NY, NY. March 25, 2007.
- Biodiversity Planning and Agriculture. Marlborough, NY. February 28, 2007.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Ridgefield Conservation Commission. Ridgefield, CT. April 6, 2006.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Great Swamp Biodiversity Partnership Workshop. Dover, NY. March 30, 2006.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Philipstown Town Council. Philipstown, NY. March 9, 2006.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. University of Chicago. Chicago, IL. February 9, 2006.

- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Chicago Wilderness. Peggy Notebaert Nature Museum. Chicago, IL. February 8, 2006.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Lake Forest College. Chicago, IL. February 7, 2006.
- Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Professor Caleb Gordon's Conservation Biology Class. Lake Forest College. Chicago, IL. February 7, 2006.
- Our Extraordinary Backyards: Realizing the Croton-to-Highlands Biodiversity Plan. Keynote address. *Our Extraordinary Backyards*. Workshop co-sponsored by WCS/MCA, Westchester Land Trust, and Cortlandt Land Trust. Cortlandt, NY. January 21, 2006.
- Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. November 29, 2005.
- The Wild Choice: Intelligent Planning for Wildlife and Wild Places. South Carolina Coastal Conservation League. Charleston, SC. November 28, 2005.
- The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Humans, Nature, and Democracy Conference. Graduate Center, New School for Social Research, New York, NY. November 17-18, 2005.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Scenic Hudson. Poughkeepsie, NY. October 31, 2005.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.
- The Link Between Intact Ecosystems and Livable Human Communities. Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Washington, CT Environmental Council. Washington, CT. July 14, 2005.
- Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. June 13, 2005.

- **Integrating Biodiversity Principles into Land Use Decisions.** Connecticut Land Use Leadership Alliance (LULA). June 3, 2005.
- Wildlife Conservation in an Urbanizing World. WCS International Conservation Committee. Bronx Zoo. May 5, 2005.
- Wildlife Conservation in an Urbanizing World. WCS Lunchtime Lecture Series. Central Park Zoo. May 4, 2005.
- Integrating Biodiversity Principles into Land Use Decisions. Connecticut Land Use Leadership Alliance (LULA). Ellington, CT. April 29, 2005.
- Finding the Forest between the Trees: The Challenges of Ecologically Scaling Land Use Decisions. Conserving our Local Landscapes: Build Your Tool-Kit of Land Management Practices. Symposium funded by The Henry Philip Kraft Family Memorial Fund of the Westchester Community Foundation. Edith May Conference Center, Briarcliff Manor, NY. April 28, 2005.
- **Biodiversity & Local Land Use Planning.** Southern Wallkill Biodiversity Meeting Towns of Chester, Goshen, and Warwick. Warwick Town Hall, Warwick, NY. April 27, 2005.
- **The Ecological Basis for Conservation Overlay Districts.** Dutchess County Environmental Management Council. Farm and Home Center, Millbrook, NY. April 21, 2005.
- **Postcards from the Edge: Nature at the Suburban-Rural Frontier.** *Nature Network Launching Conference.* The Graduate Center, City University of New York, New York, NY. April 14, 2005.
- Status of Amphibians and Reptiles in the Tri-State New York Metro Region. *Nature Network Launching Conference*. The Graduate Center, City University of New York, New York, NY. April 13, 2005.
- Planning with Nature in New Jersey. *Biodiversity & Land Use Planning Workshop* New Jersey Townships of Chester, Washington, and Lebanon. Lebanon Township Municipal Building, Glen Gardner, NJ. March 19, 2005.
- Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. Our Extraordinary Backyards. Lewisboro Land Trust & Waccabuc Landowners Council. Waccabuc County Club, Waccabuc, NY. March 5, 2005.
- Planning for Nature and Wetlands, Biodiversity. Planning for Nature Workshop. Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.

- **Tools for Local Land Use Planning.** *Planning for Nature Workshop.* Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** New Jersey Intermunicipal Meeting Chester, Lebanon, and Washington Townships. Lebanon Township Municipal Building, Glen Gardner, NJ. January 27, 2005.
- Planning for Nature. Planning for Nature Workshop. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.
- Wetlands, Biodiversity, and Tools for Local Land Use Planning. *Planning for Nature Workshop*. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Falls Village Inland Wetlands/Conservation Commission. Housatonic Valley Regional High School, Falls Village, CT. January 21, 2005.
- Gotham's Footprint: Can Science and Planning Save our Biological Heritage? . CUNY *Nature of New York* course. The School of Professional Studies at the University Center, New York, NY. December 12, 2004.
- Natural Systems, Human Systems, Planning and Design. American Institute of Architects – Conservation, Planning and Architecture: Biodiversity at Home and Abroad Session One: The MCA. Center for Architecture, New York, NY. November 15, 2004.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Warwick Valley Chamber of Commerce Annual Membership Dinner. Warwick Valley Country Club, Warwick, NY. November 12, 2004.
- **Croton-to-Highlands Biodiversity Plan.** Town of New Castle Town Board Meeting. New Castle, NY Town Hall. November 9, 2004.
- Gaining Ground Clinics: Celebrating Successful Local Leaders. Natural Resource Protection. The New York State Judicial Institute, Pace University School of Law. White Plains, NY. November 6, 2004.
- **The Wild Choice: Intelligent Planning for Wildlife and Wild Places.** Rockefeller Brothers Fund. Tarrytown, NY. November 4, 2004.
- Protecting Biodiversity While Planning for Growth. Pace University Land Use Law Center, Land Use Leadership Alliance. Hudson Valley Center, New Windsor, NY. October 29, 2004.

Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. Eastern Westchester Biotic Corridor Implementation Meeting. North Salem, NY. October 21, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Association of New Jersey Environmental Commissions (ANJEC), *Beyond Home Rule: Protecting the Environment through Regional Planning*. Mercer County Community College, West Windsor, New Jersey. October 15, 2004.

- Creative Planning to Conserve Wildlife: An Update from the Bronx Zoo's Backyard. WCS International, Bronx Zoo. Bronx, NY. September 15, 2004.
- **Croton-to-Highlands Biodiversity Plan.** Town of Putnam Valley Town Board Meeting. Putnam Valley, NY Town Hall. September 22, 2004.
- **Croton-to-Highlands Biodiversity Plan.** Town of Yorktown Town Board Meeting. Yorktown, NY Town Hall. September 7, 2004.
- Will Better Land Use Decisions Protect our Region's Biodiversity? Society for Conservation Biology 18th Annual Meeting. Columbia University, New York, NY. July 30 – August 2, 2004.
- **Extreme Frogs: A Celebration of the Second Plague.** American Museum of Natural History. *Extreme Frogs.* Kaufman Theater, New York, NY. June 29, 2004.
- **Croton-to-Highlands Biodiversity Plan: Implementation Phase.** Meeting with the towns of Cortlandt, New Castle, Putnam Valley, and Yorktown to discuss implementation strategies and priorities. Town of New Castle, NY. June 14, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Westchester Land Trust & Westchester Community Foundation Conference. Smart Growth from the Ground Up: How Community-Based Planning is Reshaping our Region's Land Use Policies. Manhattanville College, Purchase, NY. May 18, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Norfolk Inland Wetlands Agency. Norfolk, CT. April 24, 2004.
- Croton-to-Highlands Biodiversity Plan Press Conference. Turkey Mountain Nature Preserve, Town of Yorktown, NY. April 22, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Annual meeting of the *Goshen Land Trust*. St. Thomas Church, Goshen, CT. April 16, 2004.

- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Meeting of the Association of New Jersey Environmental Commissions (ANJEC). March 29, 2004.
- Keeping Connected: Securing Biodiversity in a Changing Landscape. Conference of New England Governors and Eastern Canadian Premiers, Suffolk University Law School, Boston, MA. March 15-16, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation in Connecticut. The Hotchkiss School, Lakeville, CT. March 2, 2004.
- Amphibians & Reptiles of Connecticut: 1975-Present. Hotchkiss School. Lakeville, CT. March 2, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Goshen Town Hall, Goshen NY. February 2, 2004.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Lloyd Town Hall, Lloyd, NY. February 4, 2004.
- **Intelligent Planning for Wildlife and Wild Places.** The Linnaean Society of New York. New York, NY. January 13, 2004.
- Linking Conservation to Scale in Westchester County. Manhattanville College, Purchase, NY. December 10, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Land Trust, Norwalk, CT. November 18, 2003.
- Wetlands: Is there life after Avalon? Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. CERC Graduate Seminar, Columbia University, New York, NY. November 11, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Croton-to-Highlands Corridor Meeting – Towns of Cortlandt, New Castle, Putnam Valley, & Yorktown, NY. October 27, 2003.

- **Whose Water Is It?** Dutchess County Environmental Management Council, Vassar College, NY.
- What is Biodiversity? Audubon Greenwich, Greenwich, CT. October 24, 2003.
- Wetlands and Vernal Pools. Westchester County Park Curators Vernal Pool Walk/Lecture, Rye, NY. October 10, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Eastern Connecticut District Workshop, Norwich, CT. September 29, 2003.
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. New York Bar Association, Fall Meeting, Hancock, MA. September 20, 2003
- Assembling the Pieces: A Bricks and Mortar Approach to Conservation. The Society for Conservation Biology, Annual Meeting, Duluth, MN. June 28 – July 1, 2003.
- Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions. CT River Coastal Conservation District, Inc. – Planning for Nature Workshop, Haddam, CT. June 14, 2003.
- Intelligent Planning For Wildlife and Wild Places. Sherman Conservation Commission – Conservation and Responsible Growth Workshop, Sherman, CT. June 7, 2003.
- **Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions.** Torrington, CT. May 17, 2003.
- Intelligent Planning for Wildlife and Wild Places. Pomperaug River Watershed Coalition, Inc., Southbury, CT. April 30, 2003.
- **Conservation Practices and Strategies in the New York City Region.** Society Wide Educator Meeting: Conservation Update "WCS, leading the fight to save and protect our planet's Living Landscapes", Bronx Zoo, Bronx, NY. April 21, 2003.
- Sustaining Biodiversity at the Suburban-Rural Frontier. Knollwood Garden Club, Greenwich, CT. April 8, 2003.
- Intelligent Planning for Wildlife and Wild Places. CT Green Building Council; CT Chapter American Society of Landscape Architects – "Let Nature Do the Work!", New Haven, CT. March 21, 2003.
- Planning for Nature. Planning For Nature Workshop, New Paltz, NY. March 19, 2003.
- MCA Program and FoSA Analysis. Town of Lloyd Town Board Workshop, Lloyd, NY. March 5, 2003.

- Intelligent Planning for Wildlife and Wild Places. Shawangunk Biodiversity Partnership: Eighth Annual Winter Lecture Series. SUNY New Paltz, New Paltz, NY. February 27, 2003.
- Local Conservation Issues. The Little Garden Club of Rye, Rye, NY. February 11, 2003.
- Biodiversity and the Empire State: Conserving our Landscapes. TNC, CERC, & SIPA "Biodiversity on the Brink: Challenges in Science and Policy." Columbia University, New York, NY. February 6, 2003.
- Assessing the Needs of the Towns Within the Croton-to-Highlands Corridor. Meeting of towns within the Croton-to-Highlands Corridor. Cortlandt, New Castle, Putnam Valley, and Yorktown, NY. January 16, 2003.
- **Conserving Vernal Pools for Biodiversity and Public Health.** Northeastern Mosquito Control Association Annual Meeting. Mystic, CT. December 2, 2002.
- Discovering and Defending the City's Wildlife: A Conversation with Conservationists. New York Public Library Public Program. Urban Neighbors, Urban Neighborhoods: Celebrating and Protecting New York's Wildlife and Green Spaces. New York, NY. November 7, 2002.
- Intelligent Planning for Wildlife and Wild Places. Let Nature Do the Work. Federated Conservationists of Westchester County Informational Seminar. Pace University, Pleasantville, NY. October 18, 2002.
- **Conservation at the Suburban-Rural Frontier.** Litchfield County Conservation District Annual Meeting. Bridgewater, CT. October 17, 2002.
- Connecticut Chapter of the American Planning Association Meeting. Biodiversity Protection and Conservation Area Overlay Districts. Rocky Hill, CT. June 21, 2002.
- Land Trusts, Public Officials and Scientists: Collaborating on Quality Communities. Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.
- **Biodiversity Protection: New Opportunities for Land Trusts and Public Agencies.** Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.
- Eastern Westchester Biotic Corridor. North Salem Town Board Meeting. North Salem, NY. May 28, 2002.

- Defenders of Wildlife National Workshop on Land-Use Planning & Biodiversity Conservation. Aspen Wye River Conference Center, Maryland. February 28-March 1, 2002.
- Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Backyard Biodiversity: Conservation at the Community Level. Irvington Garden Club. February 19, 2002.
- Uncovering and Covering: The Region's Unexplored Environmental Stories - Society of Environmental Journalists 2002 Boston-to-Baltimore Briefing. Sponsored by SEJ, EOHSI, the Hudson River Foundation and the New Jersey Center for Environmental Indicators. January 18, 2002.
- **Biodiversity and Land-Use Advisory Meeting.** Island Press, Washington, DC. December 17-18, 2001.
- **Examples of Regional Biodiversity Initiatives.** Farmington River Watershed Workshop, Simsbury, CT. November 30, 2001.
- Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. PACE University Lecture, Anna Giorgeou class, White Plains, NY. November 29, 2001.
- Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Westchester Land Trust Conference: Growing Smarter: How to Plan for Quality Communities, White Plains, NY. November 17, 2001.
- Sustaining Ecosystems in a Changing Landscape. Farmington River Watershed Association (FRWA) Meeting, Simsbury, CT. November 15, 2001.
- Sustaining Ecosystems in a Changing Landscape. PACE University Seminar, Dr. Josh Schwartz class, Pleasantville, NY. October 19, 2001.
- Sustaining Ecosystems in a Changing Landscape. Stamford Land Conservation Trust Annual Meeting, Stamford, CT. October 16, 2001.
- **Biodiversity and Agriculture.** Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 15, 2001.
- The Metropolitan Conservation Alliance: Protecting Wildlife at the Rural/Suburban Frontier. Conservation Medicine in the New York Bioscape: A Research, Education, and Policy Agenda - Wildlife Trust, Tarrytown, NY. October 5, 2001.

- **Conservation Strategies Combined with Local Land-Use Planning.** Tools for Watershed Management Workshop. Brooklyn, NY. October 3, 2001.
- **The Geological and Ecological Framework of the Wallkill Valley.** Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 1, 2001.
- Wise Use in the Absence of Wisdom. Property and the Commons: Rights and Responsibilities, Humans and Nature Consortium, July 17-18, 2001. Sponsored by The Hastings Center. Chicago, IL. July 18, 2001.
- Wallkill Valley Conservation: Placing Growth in an Ecological Context. Informative Slideshow & Public Discussion: Wildlife in the Wallkill Valley - How we can learn about and protect it. Sponsored by the Wallkill River Task Force - Ulster Branch. New Paltz, NY. July 11, 2001.
- Sustaining Ecosystems in a Changing Landscape. Orange County Land Trust Dinner. Warwick Center, Warwick, NY. June 14, 2001.
- Stormwater Design and Its Impact on Biodiversity. 2001 Southeast NY Stormwater Conference and Trade Show, June 13-14. Sponsored by the Lower Hudson Coalition of Conservation Districts and Hudson Valley Regional Council. Fishkill, NY. June 13, 2001.
- **Repatriation, Relocation, and Translocation: Real Solutions.** 57th Annual Northeast Fish and Wildlife Conference, April 22-25, 2001. Sponsored by the New York State Department of Environmental Conservation. Saratoga Springs, NY. April 24, 2001.
- **Biodiversity and Agriculture.** 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 12, 2001.
- Wildlife-Friendly Transportation Planning. 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 11, 2001.
- Sustaining Biodiversity in a Changing Landscape. Massachusetts Association of Conservation Commissions - 2001 Annual Meeting. Worcester, MA. March 3, 2001.
- Strategies for Providing Biodiversity Data to Key Decision-Makers (panel speaker). Status of the States: Innovative State Strategies for Biodiversity Conservation. National Biodiversity Symposium. Sponsored by the Environmental Law Institute, January 17-18, 2001. Washington, DC. January 18, 2001.

- Justice: Humans, Nature and Time. Humans, Nature, and Environmental Justice, Humans and Nature Consortium, January 15-16, 2001. Sponsored by The Hastings Center. St. Helen Island, SC. January 16, 2001.
- Biodiversity Conservation at the Suburban-Rural Frontier: New Opportunities for Land Trusts. National Land Trust Rally 2000, October 12-22, 2000. Sponsored by the Land Trust Alliance. Portland, OR. October 22, 2000.
- Sustaining Biodiversity in a Changing Landscape. Presentation to the Selectmen and interested public officials in the towns of Granby, East Granby, Simsbury, Avon, Canton, and Farmington Towns, Farmington Valley, CT. September 21, 2000.
- Sustaining Biodiversity in a Changing Landscape-Special Multi-Town Meeting. Hosted by the Planning & Zoning Board/Inland Wetland Commission, Ridgefield Town Hall Annex, Ridgefield, CT. June 21, 2000.
- **Biodiversity at the Rural Suburban Frontier: A U.S. Perspective.** The Consultative Group on Biological Diversity 2000 Annual Meeting, The Colony Hotel, Kennebunkport, ME. June 15, 2000.
- Wild New York: Local Conservation Strategies in the Metropolitan Region. Wine and Cheese Evenings with Experts, Wild New York Speaking Engagement, Central Park Zoo New York, NY. May 3, 2000.
- Sustaining Biodiversity in a Changing Landscape. The Institute of Ecosystem Study and the Conservation Committee of the Millbrook Garden Club Lecture, Millbrook, NY. April 28, 2000.
- No Place Like Home The Metropolitan Conservation Alliance. Wildlife Conservation Society Annual Meeting 2000, Lincoln Center, New York, NY. April 17, 2000.
- **Ecological Effects of Poorly Planned Development.** Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, American Museum of Natural History, New York, NY. April 13, 2000.
- Conservation of Wetland Landscapes in the NY Metropolitan Region: Science, Awareness, Policy, and Practice. Environmental Protection Agency, Vernal Pools of the Northeast Conference, University of Rode Island, Kingston, RI. April 1, 2000.
- Keynote Address: Wetlands and Wildlife: Conservation Issues. Connecticut Association of Wetland Scientists 2000 Annual Meeting, Ramada Plaza Hotel, Meriden, CT. February 17, 2000.

- Keynote Address: Landscape Conservation: Implications for the Protection and Management of Reptiles and Amphibians. Conservation and Ecology of Turtles of the Mid-Atlantic Region Conference, National Wildlife Visitor Center, Patuxent Research Refuge, Laurel, MD. October 30, 1999.
- Linking Conservation, Land-Use Regulation, and Science. American Planning Association Symposium, Chicago, IL. September 17-18, 1999.
- **The Big Apple's Biodiversity: Prospects for Survival in the Post-Eisenhowerian Era.** Biodiversity and Climate Change: Center for Biodiversity and Conservation Spring Symposium, American Museum of Natural History, New York, NY. May 1, 1999.
- **Conservation of Amphibians and Reptiles in the Northeast.** Fifty-fifth Annual Northeast Fish and Wildlife Conference, Holiday Inn, Manchester, NH. April 13, 1999.
- Sustaining Biodiversity in a Changing Landscape. The Colebrook Land Conservancy Annual Meeting, YMCA Camp Jewel, Colebrook, CT. April 8, 1999.
- The Role of Veterinarians in Monitoring the Health Status of Free-Ranging Chelonians. Association of Reptilian and Amphibian Veterinarians Fifth Annual Conference, Crowne Plaza, Kansas City, MO. September 28, 1998.
- Keynote Address: Ephemeral Wetlands Ephemeral Protection? Our Hidden Wetlands: A Symposium on Vernal Pools in Connecticut, Wesleyan University, Wesleyan, CT. November 15, 1997.
- Urban Growth and Biodiversity: Can They Co-Exist? Lecture for the Westchester Environmental Management Council and Federated Conservationists of Westchester County, Texaco, Inc. October 27, 1995.
- Post-glacial Landscape Ecology of the Long Island Sound Basin: A Herpetological Perspective. Jay Heritage Center Annual Meeting, Rye, NY. June 7, 1995.
- **Global Conservation in a Changing Environment.** Biotechnologies for the Ecological, Evolutionary and Conservation Sciences Earth Day Symposium, University of Florida, Gainesville, FL. April 29, 1995.
- From Kilimanjaro to Storm King: International Perspectives on Conserving Local Biodiversity. Environmental Problem Solving in Dutchess County Lecture Series, Vassar College, Poughkeepsie, NY. January 26, 1995.
- Local Wetlands and Their Associated Uplands: A Conservation Challenge. Wetlands Watch Lecture (Sierra Club), Chappaqua, NY. November 1, 1994.

- **Turtle at the Crossroads.** A Symposium on the Status and Conservation of Florida Turtles, Eckerd College, St. Petersburg, FL. April 3, 1994.
- Reptiles and Amphibians of the Metropolitan Region: Threats, Causes, Solutions. Eco Impact Lectures, American Museum of Natural History, New York, NY. February 24, 1994.
- **Conservation of Amphibians and Reptiles in the Hudson Valley.** Our Own Backyard. The Hudson River and New York Harbor: A Natural History, American Museum of Natural History, New York, NY. February 9, 1994.
- **The Role of Museums and Systematics in the Biodiversity Crisis.** Durrell Institute of Conservation and Ecology, University of Kent, U.K. November 11, 1993.
- **Conservation Action Planning.** World Conservation Monitoring Centre, Cambridge, U.K. November 9, 1993.
- **The Biological Significance of Aquatic Ecosystems.** The Future of America's Rivers/A Celebration of the 25th Anniversary of the National Wild and Scenic Rivers Act, Washington, DC. November 5, 1993.
- **Preserving Local Biodiversity: Lessons from Herpetology**. 1993 New York State Conference on the Environment, White Plains, NY. October 23, 1993.
- Baseline Health Parameters of Free-ranging Pancake Tortoises, *Malacochersus tornieri*, in Tanzania. Conservation, Restoration, and Management of Tortoises and Turtles-An International Conference, Purchase, NY. July 11-16, 1993.
- Status and Exploitation of the Pancake Tortoise (Malacochersus tornieri) in Tanzania. Eighteenth Annual Symposium, Desert Tortoise Council, Palm Springs, CA. May 14-16, 1993.
- **Conservation Efforts: Past Experiences, Future Needs.** Symposium on the Status and Conservation of Turtles of the Northeast, Worcester College. March 20, 1993.
- At Risk-Local Biodiversity. Millbrook Garden Club, Salisbury, CT. October 19, 1992.
- Worldwide Turtle and Tortoise Conservation Efforts by the Turtle Recovery Program. Minnesota Herpetological Society, Saint Paul, MN. May 1, 1992.
- Worldwide Turtle and Tortoise Conservation Efforts. University of Minnesota, Conservation Biology Program, Minneapolis, MN. April 30, 1992.
- Turtles in Crisis-The Problems and Possible Solutions. Brookfield Zoological Society, Brookfield, IL. April 29, 1992.

- **Tortoise and Fresh Water Turtle Recovery Program.** Chicago Herpetological Society, Chicago, IL. April 28, 1992.
- **Tortoise and Fresh Water Turtle Recovery Program.** 633rd Meeting of The Kennicott Club, Chicago, IL. April 27, 1992.
- **Building Conservation Partnerships to Conserve Turtles.** 17th Annual Symposium. Desert Tortoise Council, Las Vegas, NV. March 6-9, 1992.
- Nonmarine Turtle Decline. Northeast Nongame Technical Committee Meeting, Luray, VA. September 26, 1991.
- **Conservation Status of the Amphibians and Reptiles of Connecticut.** 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.
- Building a Coalition for Conserving Chelonian Biodiversity: The IUCN/SSC Action Plan. 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.
- Massachusetts and Connecticut Bog Turtle Situations and Projects. Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.
- Turtle Action Plan Initiative (IUCN). Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.
- The IUCN's Tortoise and Freshwater Turtle Conservation Action Plan: Reporting the First Year of Progress. Seminar, Middlebury College, VT. April 4, 1991.
- The IUCN/Tortoise and Freshwater Turtle Specialist Group Conservation Action Plan: Report of the First Year's Progress. 16th Annual Symposium. Desert Tortoise Council. Las Vegas, NV. March 8-11, 1991.
- **Tortoises and Freshwater Turtles: An Action Plan for Their Conservation.** Joint initiative of the American Museum of Natural History and the World Conservation Union Species Survival Commission (IUCN/SSC), Special Members Lecture, American Museum of Natural History, New York, NY. February 6, 1991.
- IUCN Global Action Plan for the Conservation of Freshwater Turtles and Tortoises and Recommendations on an Upland Habitat Acquisition Program for the Gopher Tortoise Council. Twelfth Annual Meeting of the Gopher Tortoise Council, Brooksville, FL. October 26-28, 1990.

- Implementing the International Union for the Conservation of Nature Tortoise and Freshwater Turtle Action Plan. Symposium on Turtles and Tortoises: Conservation and Captive Husbandry. Chapman College, Orange, CA. August 9-12, 1990.
- Think Globally Act Locally: The Importance of Maintaining Local Wildlife Populations. Long Island's Natural Habitat Management Series: Managing and Protecting Long Island's Endangered Species, Suffolk Community College, Long Island, NY. June 8, 1990.
- The IUCN Global Action Plan for the Conservation of Tortoises and Freshwater Turtles. New York Turtle and Tortoise Society Fifth Annual Seminar, Fordham University, Bronx, NY. April 28, 1990.
- Postglacial Hybridization of *Ambystoma jeffersonianum* and *Ambystoma laterale* (Amphibia: Caudata) in the northeastern United States. First World Congress of Herpetology, Canterbury, UK. September 11-19, 1989.

FUNDRAISING EXPERIENCE: AWARDS RECEIVED

State of Connecticut Department of Environmental Protection

Support for "Barkhamsted Low Impact Development Project 2010 Support for "Planning for Nature in Connecticut" workshop series, Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003 – 2005. Support for "Farmington Valley Biodiversity Project" and "From Planning to Action: Biodiversity Conservation in Connecticut Towns", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – current.

New York State Department of Environmental Conservation

Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – 2007.

Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces for Target Communities", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2001 – 2003.

Geraldine R. Dodge Foundation

Support for "A Cooperative, Science-Based Approach to Improving Wildlife Management in New Jersey", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003, renewal grant 2005.

Westchester Community Foundation

Renewed support for Westchester Biotic Corridor projects, Wildlife Conservation Society, Metropolitan Conservation Alliance Program. 1999 - 2010.

Gage Fund

Renewed annual support for Eastern Westchester Biotic Corridor. 2002-2010

Surdna Foundation, Inc.

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1998-2000. Funding for Wildlife Conservation Society, NY Metro Program, 1997.

Sweet Water Trust

Support for "Wetland Landscapes of the Northeast," 1999-2000. Support for "Inventory, Information, and Research Accomplishments in the Great Swamp," Wildlife Conservation Society, NY Metro Program, 1997.

Doris Duke Charitable Foundation

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1999, 2001.

Leo Model Foundation

Wildlife Conservation Society, Tanzania Biodiversity and Training Program, 1997.

The Bay Foundation

Support for "Assessment of Amphibian and Reptile Biodiversity in Tanzania's National Parks," 1995-1997.

Support for integrating conservation science into Scenic Hudson 2008 Support for MCA at Cary Institute, 2010-2011.

Geoffrey Hughes Foundation

Support for Massachusetts/Connecticut bog turtle ecosystem study, 1995-1997.

The Norcross Wildlife Foundation

Funding for the Wildlife Conservation Society, International Programs, 1995-1997.

Support for the publication of "Amphibians and Reptiles of Connecticut and Adjacent Regions," 1993.

Funding for Turtle Recovery Program, American Museum of Natural History, 1991-1992.

Field Day Foundation

Support for Metropolitan Conservation Alliance 2009-2011.

United States Department of Agriculture (Forest Service)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.
United States Department of Defense (Legacy Program)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

National Science Foundation

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1993.

United State Department of the Interior (Bureau of Land Management)

Support for preparing conference proceedings "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1992.

Wildlife Conservation International (Now WCS International Programs)

Field Assessment of the Status and Exploitation of the Pancake Tortoise *(Malacochersus tornieri)* in Tanzania, 1992.

John D. and Catherine T. MacArthur Foundation

Tropical Rainforests: Can We Regain Paradise Lost? (educational programming grant), 1990.

Capacity building in Tanzanian National Parks: Biodiversity assessment and monitoring, 1994-1998.

<u>FUNDRAISING EXPERIENCE: NGO, COPORATE</u> <u>& INDIVIDUAL SUPPORT</u>

Acorn Foundation

American Federation of Herpetoculturists

Aquarion Co.

Bay and Paul Foundation (multiple awards to support conservation and biodiversity activities)

Roland Betts

Brystie, Inc.

California Turtle and Tortoise Club

Camden House Publishing

Chelonia Institute

Chicago Zoological Society

Conservation and Research Foundation

Conservation International (2 grant awards)

Desert Tortoise Council (2 grant awards)

Martin Diamond (multiple grant awards) Doris Duke Charitable Trust Dorothy R. Donnelley Charitable Trust (6 grant awards) Gordon and Jean (Phipps) Douglas (multiple awards to support policy activities) Field Day Foundation Robert and Alexandra Goelet (*multiple awards to support conservation activities*) Institute for Herpetological Research. J. P. Morgan & Co IUCN/SSC Trade Specialist Group Jersey Wildlife Preservation Trust (2 grant awards) Knoxville Zoological Gardens Leyland Alliance John D. and Catherine T. MacArthur Foundation Model Foundation New York Return A Gift to Wildlife (2 grant awards) New York Turtle and Tortoise Society (3 grant awards) Norcross Wildlife Foundation (3 grant awards) Oklahoma City Zoological Park Peter Scott Fund-IUCN (3 grant awards) Sabin Conservation Fund (7 grant awards) Saint Augustine Alligator Farm Surdna Foundation (2 grant awards) Sweet Water Trust (2 grant awards) Tampa Bay Herpetological Society Tennessee Aquarium Tipton and Maglione US Fish and Wildlife Service Dr. Lucy (Rockefeller) Waletzky (multiple awards to support conservation activities) Westchester Community Foundation (multiple awards to support biodiversity research)

EXHIBIT 5

AFFIDAVIT REGARDING NOTICE

Mary Mintel Miller, being duly sworn, does hereby depose and say:

1. I am over the age of eighteen, understand the meaning and obligation of an oath, and am competent to testify as to the matters stated herein.

2. I am counsel for the petitioners, Ranald K. Nicholas and Robin L. Nicholas, and am fully familiar with the facts set forth herein.

3. On February 21, 2023, the petitioners, through undersigned counsel, gave notice of the substance of the petition, and of the opportunity to file comments and to request intervenor or party status under R.C.S.A. § 22a-3a-4(c)(1), to all persons known by the petitioner to have an interest in the subject matter of the petition. Such notice was served, via first-class mail, upon the parties listed on the attached list.

Dated at Hartford, Connecticut, this 21st day of February, 2023.

Mary M. Miller

Mary Mintel Miller

Subscribed and sworn to before me this 21st day of February, 2023.

Commissioner of the Superior Court Notary Public My commission expires:

> SUZANNE J. PIZZOFERRATO NOTARY PUBLIC My Commission Expires Feb. 28, 2025

INTERESTED PARTIES

North Stonington, LLC C/O Silicon Ranch 222 Second Ave S. Suite 1900 Nashville, TN 37201

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Thomas A. & Colleen C. Murphy 86 Wilson Road Litchfield, CT 06759-2621

Trustee Ronald M. Viola P.O. Box 1134 Litchfield, CT 06759-1134

Litchfield Farms Inc. & Monica Milde 761 Armonk Road Mt. Kisco, NY 10549-4608

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Deanna M. Marchand 62 Wilson Road Litchfield, CT 06759

Keith A. Zordan 66 Wilson Road Litchfield, CT 06759

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Chip Fund 6 LLC 18 Wells Hill Road Easton, CT 06612

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