

**BOARD OF SELECTMEN**  
**October 29, 2013**  
**Needham Town Hall**  
**Agenda**

1.	6:30 Selectmen's Chambers	Solar Installation Recommendation <ul style="list-style-type: none"> <li>• Solar Energy Exploratory Committee</li> </ul>
2.	7:00 Powers Hall	Public Information Session – Warrant Review

**CONSENT AGENDA**      *\*=Backup attached*

1.	Approve a One Day Special All Alcoholic Beverages License request from Michael Despres, of the Village Club to host the Needham Junior Football and Cheer Dance Party on Saturday, November 9, 2013 from 7:00 p.m. to 11:30 p.m. at The Village Club, 83 Morton Street, Needham.
2.	Approve a One Day Special All Alcoholic Beverages License request from Michael Despres, of the Village Club to host the Mitchell School PTC's Oktoberfest on Friday, November 8, 2013 from 5:00 p.m. to 11:30 p.m. at The Village Club, 83 Morton Street, Needham.



**Board of Selectmen  
TOWN OF NEEDHAM  
AGENDA FACT SHEET**

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**MEETING DATE: 10/29/2013**

<b>Agenda Item</b>	Solar Installation Recommendation
<b>Presenter(s)</b>	David Harris, Solar Energy Exploratory Committee (SEEC) Beth Greenblatt, Beacon Integrated Solutions/Owner's Agent Hank Haff, PFD Project Manager Ann Dorfman, RTS Superintendent

<b>1.</b>	<b>BRIEF DESCRIPTION OF TOPIC TO BE DISCUSSED</b>		
<p>The Solar Energy Exploratory Committee will provide the Board with its recommendation on the selection of a developer to install and operate the proposed large-scale, ground-mounted solar photovoltaic facility at the Recycling Transfer Station – subject to Town Meeting action.</p>			
<b>2.</b>	<b>VOTE REQUIRED BY BOARD OF SELECTMEN</b>	<b>YES</b>	<b>NO</b>
<p><i>Suggested Motion:</i> That the Board of Selectmen vote to endorse the recommendation of the Solar Energy Exploratory Committee to award a lease of up to 25 years and an Energy Management Services Agreement up to 20 years for the installation and operation of a large-scale ground-mounted solar photovoltaic facility at the Recycling Transfer Station to Brightfields Development, LLC in accordance with the terms set forth in the developer's response to the Town's Request for Proposals, including a lease payment to the RTS Enterprise Fund, and a PILOT Agreement.</p>			
<b>3.</b>	<b>BACK UP INFORMATION ATTACHED</b>	<b>YES</b>	<b>NO</b>
<p>a. Recommendation from the SEEC to the Board of Selectmen, 10/29/13 PPT b. Excerpt from the Non-Price Proposal by Brightfields Development, LLC</p>			

# Town of Needham Solar Photovoltaic Project

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Recommendation from the  
Solar Energy Exploratory Committee  
to the Board of Selectmen



October 29, 2013

# Solar Photovoltaic Economics

## *Economic Market Drivers*

- ❖ The current cost to develop Solar Photovoltaics (PV) is too high to be cost competitive with traditional forms of energy generation. As a result, Federal and State incentives have been established to induce renewable energy development to foster green energy production, reduce dependence on foreign oil and reduce greenhouse gas emissions.
- ❖ Legislative and regulatory incentives provide targeted economic benefits to support the economic commercialization of renewable energy generation, particularly Solar Photovoltaics.
- ❖ **Key Environmental Driver** - Solar renewable energy certificates (SRECs)
  - ❑ Worth up to 7 times the value of a traditional, non-solar renewable energy credit and serves as a revenue stream to offset capital and financing costs for the developer.
- ❖ **Key Financial Driver** - Net metering credits
  - ❑ Generation delivered to NStar in excess of any on-site, behind the meter, consumption.
  - ❑ Net metering is the monetized value of the generation produced by the systems and delivered to NStar for the benefit of the Town.



# Solar Photovoltaics Economics

## Net Metering System of Assurance – NStar Cap Allocations

❖ As of October 16, 2013.

Queue	CAP (MW AC)	Currently Interconnected (MW AC)	Reserved Cap Allocations (MW AC)	Pending Cap Allocations (MW AC)	Capacity Available (MW AC)
NStar Public Sector Queue	149.34	36.53	73.97	6.31	<b>32.53</b>
NStar Private Sector Queue	149.34	48.79	12.63	9.69	78.24



# Solar Photovoltaic Procurement

## Results

- ❖ 11 proposals received, 4 firms shortlisted for interviews based on published evaluation criteria.

	Ameresco	Brightfields	Citizens	SouthernSky
<b>EVALUATION CATEGORY - NON PRICE PROPOSAL</b>				
Approach and Schedule	0.2	0.2	0.15	0.2
Respondent Qualifications and Experience	0.85	0.80	0.75	0.55
Performance Record of Respondent and its affiliates, subsidiaries or partners	0.6	0.6	0.75	0.6
Project Understanding	0.65	0.65	0.7	0.55
Overall system plan and optimization of site	0.6	1	0.8	0.8
Education and outreach	0.2	0.2	0.05	0.05
Financing plan	1	0.9	1	0.8
<b>Total weighted points for Non-Price</b>	<b>4.1</b>	<b>4.35</b>	<b>4.2</b>	<b>3.55</b>
<b>EVALUATION CATEGORY - PRICE PROPOSAL</b>				
Overall Price - 2MW	2.25	3.0	2.25	3.0
Overall Price - Optimized Project	0.6	0.9	0.8	0.9
Other Economic Benefit - Demo, LCD Panels	0.15	0.25	0.2	0.15
<b>Total weighted points for Price</b>	<b>3</b>	<b>4.15</b>	<b>3.25</b>	<b>4.05</b>
<b>Weighted Points</b>				
<b>TOTAL NON-PRICE AND PRICE POINTS</b>	<b>7.1</b>	<b>8.5</b>	<b>7.45</b>	<b>7.60</b>
<b>SEEC RANKING</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>2</b>

# Procurement Results-Qualifications

## *Top Ranked Firm – Brightfields Development*

- ❖ Local Wellesley-based firm
  - Parent company, Renova has significant experience on owning, operating and constructing assets on landfills/brownfields
  - Brightfields has significant experience installing solar photovoltaics on landfills, brownfields and Federal superfunds, including the Scituate, MA landfill
  - Brightfields Development, subsidiary of Renova Partners LLC, privately-held, founded in 2009 and 2001 respectively
- ❖ Strong team with diverse domain expertise and knowledge of RTS
  - Advanced Solar Products, founded in 1991, privately-held, NJ headquartered with local offices in Medford and Pelham, MA
  - Weston & Sampson, privately-held MA headquartered firm, current consultant to Needham on landfill monitoring and operations
- ❖ Committed financial backing by Morgan Stanley
- ❖ Optimized project sized at 3.7 MW DC generating approximately 5,100,000 kWh/yr



# Procurement Results - Pricing

## *Top Ranked Firm – Brightfields Development*

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- ❖ Strong financial offer at rate less than NStar base distribution price
- ❖ No annual escalator for twenty years
- ❖ Conservative pricing assumptions on incentives for Solar Renewable Energy Credits and NStar Interconnection costs
- ❖ Purchase price at term expiration – fair market value
  - expected to be \$0 (after consideration for salvage value)
- ❖ Decommissioning Assurance costs supported by a bond or escrow in the amount of \$100,000
- ❖ Guarantee of 90% of the annual expected generation



# Procurement Results—Other Benefits

## *Top Ranked Firm – Brightfields Development*

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- ❖ Other Services and Offers:
  - Roof-mounted solar photovoltaic installation on the Salt Shed at the same pricing offer with no annual escalators
    - ◆ 91 kW system, generating approximately 122,000 kWh/yr
  - Highly comprehensive educational and outreach programs including:
    - ◆ Customized solar and renewable energy curriculum support
    - ◆ Customized online monitoring systems for grades K-6 and 7-12
    - ◆ Modeled after successful Town of Scituate program
  - Kiosk and other monitoring systems in public Town buildings and the RTS



# Solar Photovoltaic Project

## *Next Steps*

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- ❖ Considerations:
  - Project layouts are preliminary subject to technical, environmental and regulatory review.
  - Design details will be finalized post award and contract execution during the extensive development and permitting process.
  - Reasonable assumptions were used in developing project sizing, regulatory incentive impacts, NStar interconnection costs and project pricing.
    - ◆ Regulatory incentives and interconnection costs in excess of the base assumptions may be passed through to the Town on a \$/kWh basis.
  - Town conducted scenarios analysis to determine impact of overall economic benefit to the Town under varying escalators for net metering.





**BRIGHTFIELDS DEVELOPMENT OFFER - NET METERING ESCALATING AT 0%/YR**

Illustrative Annual Costs to the Town		Net Metering				Revenue Sources			Annual Net Benefits			
Year	Generation in kWh (Degrade at 0.5%/yr)	Vendor Rate with Lease & PILOT (\$/kWh) (Escalate at 0%/yr)	Illustrative Vendor Cost	Ave. NStar Net Metering Rate (\$/kWh) (Escalate at 0%/yr)	Total Net Metering Credit Value	Base Lease Revenue (Escalate at 0%)	Illustrative PILOT Revenue (Escalate at 0%) [1]	Financial Benefit from Net Metering Only	Financial Benefits from Lease and PILOT	Total Project Benefits (NM + Lease + PILOT)	Total Benefit per kilowatt-hr	
	A	B	C = A*B	D	E = A*D	F	G	H = E-C	I = F+G	J = H+I	K = J/A	
1	5,224,576	\$0.0700	\$365,720	\$0.16337	\$853,515	\$50,000	\$93,600	\$487,795	\$143,600	\$631,394	\$0.1209	
2	5,198,453	\$0.0700	\$363,892	\$0.16337	\$849,248	\$50,000	\$93,600	\$485,356	\$143,600	\$628,955	\$0.1210	
3	5,172,461	\$0.0700	\$362,072	\$0.16337	\$845,001	\$50,000	\$93,600	\$482,929	\$143,600	\$626,529	\$0.1211	
4	5,146,599	\$0.0700	\$360,262	\$0.16337	\$840,776	\$50,000	\$93,600	\$480,514	\$143,600	\$624,114	\$0.1213	
5	5,120,866	\$0.0700	\$358,461	\$0.16337	\$836,572	\$50,000	\$93,600	\$478,112	\$143,600	\$621,711	\$0.1214	
6	5,095,261	\$0.0700	\$356,668	\$0.16337	\$832,390	\$50,000	\$93,600	\$475,721	\$143,600	\$619,321	\$0.1215	
7	5,069,785	\$0.0700	\$354,885	\$0.16337	\$828,228	\$50,000	\$93,600	\$473,343	\$143,600	\$616,942	\$0.1217	
8	5,044,436	\$0.0700	\$353,111	\$0.16337	\$824,086	\$50,000	\$93,600	\$470,976	\$143,600	\$614,576	\$0.1218	
9	5,019,214	\$0.0700	\$351,345	\$0.16337	\$819,966	\$50,000	\$93,600	\$468,621	\$143,600	\$612,221	\$0.1220	
10	4,994,118	\$0.0700	\$349,588	\$0.16337	\$815,866	\$50,000	\$93,600	\$466,278	\$143,600	\$609,878	\$0.1221	
11	4,969,147	\$0.0700	\$347,840	\$0.16337	\$811,787	\$50,000	\$93,600	\$463,947	\$143,600	\$607,546	\$0.1223	
12	4,944,301	\$0.0700	\$346,101	\$0.16337	\$807,728	\$50,000	\$93,600	\$461,627	\$143,600	\$605,226	\$0.1224	
13	4,919,580	\$0.0700	\$344,371	\$0.16337	\$803,689	\$50,000	\$93,600	\$459,319	\$143,600	\$602,918	\$0.1226	
14	4,894,982	\$0.0700	\$342,649	\$0.16337	\$799,671	\$50,000	\$93,600	\$457,022	\$143,600	\$600,622	\$0.1227	
15	4,870,507	\$0.0700	\$340,935	\$0.16337	\$795,672	\$50,000	\$93,600	\$454,737	\$143,600	\$598,337	\$0.1228	
16	4,846,155	\$0.0700	\$339,231	\$0.16337	\$791,694	\$50,000	\$93,600	\$452,463	\$143,600	\$596,063	\$0.1230	
17	4,821,924	\$0.0700	\$337,535	\$0.16337	\$787,736	\$50,000	\$93,600	\$450,201	\$143,600	\$593,801	\$0.1231	
18	4,797,814	\$0.0700	\$335,847	\$0.16337	\$783,797	\$50,000	\$93,600	\$447,950	\$143,600	\$591,550	\$0.1233	
19	4,773,825	\$0.0700	\$334,168	\$0.16337	\$779,878	\$50,000	\$93,600	\$445,710	\$143,600	\$589,310	\$0.1234	
20	4,749,956	\$0.0700	\$332,497	\$0.16337	\$775,979	\$50,000	\$93,600	\$443,482	\$143,600	\$587,081	\$0.1236	
Total	99,673,959		\$6,977,177		\$16,283,279	\$1,000,000	\$1,871,992	\$9,306,102	\$2,871,992	\$12,178,094		

**Assumptions:**

0.0% Vendor generation annual price escalator	\$0.07426 Basic Service
0.0% Net Metering annual price escalator	\$0.08911 Delivery Charges
0.5% Annual system degradation	\$0.16337 Total Current Rate for A9 Tariff - No demand meter

[1] PILOT calculated by Beacon based on DOR revenue model

# Impact of Net Metering On Annual Electricity Costs

- ❖ Assumptions:
  - Optimized project at 3.7 MW DC (3.27 MW AC) for more than 5.2 million kilowatt-hours

Town Budget for Electricity Fiscal Year 2013	1 <sup>st</sup> Year Credits from Net Metering to Town	1 <sup>st</sup> Year PILOT Revenue to Town	1 <sup>st</sup> Year Revenue from Lease Payment to Town	Net Annual Electricity Costs (1)	Percent Electricity Cost Reduction from Optimized Solar PV at the RTS (1)
\$1,775,524	\$487,795	\$93,600	\$50,000	\$1,144,129	35.6%

Note (1): Illustrative benefits on savings if all the net metering benefits accrued to off-set town electricity costs.



# Risk Analysis

## *Time is of the Essence*

Risk	Probability	Discussion
Net Metering Cap Reached	Med-High	Public Net Metering cap may be reached by early 2014. Private Net Metering cap available, but project will need to be downsized to under 1 MW AC.
SREC Program Changes	Medium	New program guidelines under review; minimal changes expected. Pricing assumes program guidelines proposed by DOER in August 2013.
Solvency of Developer	Low - Med	Provisions in the contract for assignment, buy-out and decommissioning assurance. Backed by a significant financial partner.
Electricity Rate Drop	Low	The average cost of electricity has steadily increased over the past century. Scenario analysis conducted to assess risk.
Investment Tax Credits Change	Low	Tax incentives have a sunset provision known to developers .
Damage – Acts of God	Low	Developers will be required to have sufficient insurance and decommissioning assurance.



# Thank You

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Solar Energy Exploratory Committee,

Town Staff

and

Owner's Agent, Beacon Integrated Solutions





PETE PEDERSEN  
MANAGING PRINCIPAL

40 WALNUT STREET  
SUITE 301  
WELLESLEY, MA 02481

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F 781.431.8105

PPEDERSEN@BRIGHTFIELDSLLC.COM

October 4, 2013

VIA COURIER

Ms. Carys Lustig  
Supervisor of Administration  
Needham Department of Public Works  
Public Services Administration building  
500 Dedham Avenue  
Needham, MA 02492

Re: Request for Proposals for Energy Management Services for Solar Photovoltaic Installations

Dear Ms. Lustig:

Brightfields Development LLC ("Brightfields") is pleased to submit this Project Proposal in response to the Town of Needham's Request for Proposals of September 11, 2013 ("RFP") for Energy Management Services for Solar Photovoltaic Installations. Brightfields proposes to lease the closed landfill owned by the Town of Needham and construct a solar energy array on the land. Brightfields also examined opportunities for developing smaller solar arrays on a number of other possible locations at the Needham Recycling and Transfer Station ("RTS"), and it proposes to construct an additional solar array on the roof of one of the RTS buildings to yield a total project that is both large-scale and cost-effective.

Brightfields is qualified to construct the solar energy arrays as a result of the extensive experience of its principals in energy project development (biomass, natural gas and solar), project finance and landfill ownership and operation. Brightfields personnel also have decades of experience working closely with host municipalities when developing energy generation assets as well as commercial and residential real estate developments. The Brightfields 3 MW solar project on the closed Scituate landfill commenced operations in September 2013, and Brightfields welcomes the opportunity to develop a similar project on the Needham landfill. Brightfields has partnered on the Needham proposal with Advanced Solar Products ("ASP"), one of the most experienced engineering, procurement and construction firms in the solar industry in the northeastern United States, and Weston & Sampson, the incumbent engineering firm serving Needham's needs with respect to the RTS landfill.

Brightfields personnel have been active in all phases of corporate and project finance since the early 1980s, ranging from venture capital financings to public debt and equity offerings to project financings for utility-scale energy projects, major commercial real estate developments and contaminated property redevelopment projects. The Brightfields principals have raised in excess of \$3 billion for various projects over their careers. Brightfields has established contacts with institutional equity investors and sources of debt that are seasoned energy project investors with a current appetite for solar energy projects.

40 Walnut Street, Suite 301  
Wellesley, MA 02481  
P-781.489-6239 F-781.431.8105  
[www.BrightfieldsLLC.com](http://www.BrightfieldsLLC.com)

EXCERPTS FROM QUALIFICATIONS SUBMISSION FOR  
NEEDHAM BOARD OF SELECTMEN MEETING 10/29/13



**BRIGHTFIELDS**  
DEVELOPMENT LLC

## Non-Price Proposal

For Energy Management Services for the Town of Needham

October 4<sup>th</sup>, 2013



## ABOUT THIS DOCUMENT

Brightfields Development LLC has elected to use Neenah's Green Ultra Bright White Paper for our Proposal because we believe in a sustainable planet and choose to support other companies that also utilize clean renewable energy and environmentally responsible practices.

Environmental attributions for Neenah's Green Ultra Bright White Paper include:

- 🌳 **Forest Stewardship Council™**
  - Made with 100% recycled fiber; promotes and enhances well-managed forests responsible forestry practices.
  
- 🌳 **Green Seal™ Certified**
  - Made with at least 30% post consumer fiber; signifies that all mill processes, including packaging, are carried out in an environmentally preferable manner.
  
- 🌳 **Green-e Certified**
  - Paper is made with 100% renewable energy
  
- 🌳 **Carbon Neutral Plus**
  - Neenah is a member of The Climate Registry and is committed to reducing their carbon footprint through investments in energy conservation and renewable energy resources.
  
- 🌳 **Recycled**
  - Made with 100% post consumer recycled fiber



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- b. A-2: Certificate of Non-Collusion
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**CONFIDENTIAL INFORMATION**

\* Please see the attached sealed and confidential envelope for documents.



## 1.) EXECUTIVE SUMMARY

On September 11<sup>th</sup>, 2013, The Town of Needham (“Needham”) issued a Request for Proposals (“RFP”) for Energy Management Services (“EMSA”) for solar arrays on the closed landfill owned by Needham (the “Site”) and additional rooftop and parking lot space at the Recycling & Transfer Station (“RTS”), which is located at 1407 Central Avenue, Needham, Massachusetts.

After visiting the site on September 16<sup>th</sup> and again on September 20<sup>th</sup>, Brightfields Development LLC of Wellesley, Massachusetts (“Brightfields”) proposes to increase the size of the solar array on Needham’s landfill to the maximum optimal extent and install additional rooftop capacity at the RTS. By integrating multiple solar arrays into one clean energy project, Needham can become a model municipality for Massachusetts DOER and Governor Patrick’s emerging policy for the second round of Massachusetts Solar Renewable Energy Credits, which is expected to be finalized in early 2014. The optimal solar development proposed by Brightfields, described more fully below, is expected to provide a financial benefit to Needham with a PPA price of \$0.06/kWh per year for the 20 - year life of the project. Assuming Needham is paying \$0.18/kWh for its electricity, the year one energy savings amounts to **\$626,453, not including the PILOT & Lease.**

Brightfields will present three possible scenarios for projects on the RTS property in both its Non-Price Proposal and its Price Proposal. First, Brightfields will present the base case for a 2 MW project requested by Needham. Second, Brightfields will show a scenario depicting installation of solar on all possible areas of the RTS. Finally, Brightfields will propose an optimal solution that maximizes the amount of cost-effective solar assets on the RTS property. Brightfields believes that with the proposed solar project, Needham has an opportunity not just for cost savings, but also for a broader elevated environmental consciousness for its community. This can be achieved with both the construction of the solar array and a thoughtful and dedicated educational strategy. As experienced redevelopers of landfills, Brightfields will ensure that these savings and educational benefits will not come at the expense of a structurally sound and properly maintained landfill.

Brightfields has unmatched experience developing industrial projects on closed landfills, brownfields and Superfund sites. Our team has transformed contaminated properties into community assets in various municipalities across the country. The most recent and most relevant to Needham is the 3.0 MW landfill solar project in Scituate, MA (“Scituate”). The project achieved commercial operation September 24<sup>th</sup> of this year. After Scituate awarded the project to our team, Brightfields was responsible for completing Scituate’s educational curriculum, regarding solar energy generally and the Scituate project in particular, and all the major milestones necessary to prepare the Driftway project for commodity financing and construction (see Exhibit 4 for Scituate Documentation). This includes:

### Legal:

- The lease agreement with Scituate for the landfill property
- The net metering and power sales agreement with Scituate



Landfill Evaluation & Reuse Permit:

- The detailed environmental study and design
- The Massachusetts Department of Environmental Protection (“MADEP”) Landfill Reuse Permit application and approval

Design:

- The full project schedule
- The array layout and electrical one-line design for the interconnect process

National Grid:

- The interconnection application with NGRID
- The system impact study with NGRID

Local:

- All Scituate permits

Regulatory Requirements and Interface:

- MA DOER, MADEP, MA DPU, FERC and ISO-NE

Community Education:

- The renewable energy education curriculum for K-12
- Town meeting presentation
- Informational kiosk design
- Guided site tours

Al Bangert, who spearheaded the solar facility development for Scituate, has provided a letter in support of Brightfields’ Proposal to Needham, and it is included as Exhibit 5 (a).

Brightfields is confident it can deliver the same quality solar assets and community education program to Needham while satisfying the requirements listed in the EMSA, as described in Section 6. Brightfields is prepared to offer Needham \$100,000 per year in a combination of lease payments and PILOT payments for the Site, as requested, for the life of the Power Purchase Agreement (“PPA”). In addition, though not part of the RFP, the Brightfields team can assume the ongoing operations and maintenance requirements of the landfill and gas venting system for Needham for the life of the Project, offering potential cost savings to the Town and an integrated solar system – landfill maintenance solution. Finally, as detailed in the separate Price Proposal, Brightfields can offer Scituate significant savings on the price of the energy purchased from the landfill project compared to the cost of the Town’s other energy supplies.

Brightfields has partnered with Advanced Solar Products, Inc. (“ASP”), an innovative New Jersey-based engineering, procurement and construction (“EPC”) agent with offices in Boston and Pelham, MA for the Project. ASP personnel have worked at a high level implementing successful solar policy in the Northeast for many years. For example, Tom Thompson of ASP’s Pelham, MA office is the current head of the SEBANE trade group. SEBANE was founded by some of the world’s leading solar energy professionals who have lead the creation of the solar markets in our region and, and it has been an active



and trusted voice during the collaborative Massachusetts SREC II policy development process.

ASP has successfully completed over 40.0 MW of ground mount solar projects in New England. Collectively, the ASP staff has over 150 years of experience in the renewable energy and environmental technology fields. Brightfields and ASP are currently working together on a 75 MW portfolio of landfill solar projects in 25 municipalities across Puerto Rico.

The union of Brightfields and ASP is a local team of seasoned professionals with unparalleled experience in contaminated properties and power development. Brightfields has an unmatched proficiency with constructing, operating and maintaining landfills developed through its successful efforts designing and implementing environmental and regulatory closure for brownfields and Superfund sites nationwide. ASP has a proven, innovative approach to ground mounted solar installations that utilizes a proprietary racking technology called Solstice with the lowest bearing pressure available on the market today, reducing landfill loading to a minimum. Solstice offers aesthetic improvements compared to more elevated panel racking systems and a secure approach to wind loading, generally a concern on an elevated landfill surface in high wind areas. The three scenarios presented by Brightfields are summarized below:

#### a. 2.0 MW AC Base Case System

- 2.0 MW AC PV system size
- 3,416,906 million kWh of clean, solar energy produced
- \$0.09/kWh PPA price
- 0% year escalator
- 20 year PPA term

#### b. Maximum Solar Development at the RTS

As indicated in the RFP, Needham is interested in the opinions of the various Proponents in this process regarding the maximum sized project possible. While Brightfields does not believe the maximum solar system is optimal due to the increased unit costs of production and the physical constraints of the RTS property, it includes the following as a basis of comparison. In particular, while theoretically possible, development of solar atop newly constructed carports would yield only 171kW of additional power at a higher average cost. Similarly, while several buildings at the RTS could host solar panels on their roofs, Brightfields believes only the salt shed storage roof offers a compelling case as a substrate for solar. While the maximum solar development includes an extra 23kW on the roofs of the various RTS buildings, Brightfields believes only the salt shed storage roof is a cost-effective site for solar panels.

- 4.00 MW DC PV system size
- 5,459,864 million kWh of clean, solar energy produced
- \$0.065/kWh energy PPA price
- 0% escalation
- 20 year PPA term



### c. Optimal Solar Development

This third scenario is the one recommended by Brightfields, since we believe it offers the largest amount of cost-effective solar power while not impeding the activities of the RTS. Given the considerable amount of usable space at the Site and Needham's large electricity consumption, ASP and Brightfields recommend a 3.7 MW (DC) solar system on the Landfill, significantly larger than what is set forth in the base case, above. The optimal project would also include an additional 91kW of power derived from panels to be constructed on the salt storage shed building. Brightfields' Price proposal is based on this case, which (i) does not include building solar arrays on the roofs of RTS buildings Brightfields deems presently unsuitable for solar and (ii) does not rely on carports that would be small, add significant unit expense to a solar development and might interfere with heavy traffic at the RTS.

- o 3.81 MW DC PV system size
- o 5,220,443 million kWh of clean, solar energy produced
- o \$0.06/kWh energy PPA price
- o 0% escalation
- o 20 year PPA term

### d. Navigating Regulatory Hurdles: MADEP & NSTAR

The Project will only become a reality if the team selected by Needham is able to secure a Landfill Re-Use Permit from MADEP and an Interconnection Service Agreement from NSTAR to enable a Virtual Net Metering reservation. Brightfields and ASP have dealt with both energy regulators and regulated utilities in many states, including Massachusetts. The Brightfields-ASP team understands that each agency and utility has different pressures and requirements. We are well prepared for a productive discussion with MADEP, MA DOER and NSTAR. We intend to leverage the members of our team with extensive experience working with Massachusetts regulators and utilities to assist in discussions that will lead to a successful Landfill Reuse Permitting, Interconnection, Virtual Net Metering and SREC II solicitation process.

### e. Energy Efficiency

Replacing grid-derived electricity with clean solar power is an important step towards long-term sustainability. Besides just producing clean energy, Needham has the opportunity to reduce its total power demand by improving its energy efficiency. If of interest to the Town, ASP can examine all Needham municipal buildings at no extra charge to produce an energy efficiency assessment. ASP can provide practical advice on how to make each building more energy-efficient with the best available technology, including lighting fixtures, space conditioning, demand response software retrofits, insulation and other energy saving equipment. Brightfields and ASP will work with the Town to identify the highest impact choices based on budget and planning considerations and the savings from the Project. Implementing any of these options can have a real and significant impact on total electricity consumption.

By reducing demand, the portion of Needham's energy use that is satisfied by the Project will increase. ASP and Brightfields will work with the Town to establish numerical



consumption reduction goals and provide a detailed pathway to achieving these benchmarks along the way to greater energy efficiency in the municipal buildings.

#### **f. Solar on Other Town Properties Besides the RTS**

Though the Town has reserved the bidding of additional sites until some time in the future, Brightfields and ASP are prepared to assist Needham with the identification of additional suitable sites for solar systems. The RTS property alone is large enough to supplant a large portion of the Town's total electricity demand, however, integrating smaller scale systems at other municipally-owned locations, particularly rooftop and carport applications, would allow the Town to generate a significant amount of additional clean power. These additional sites would be a valuable visual demonstration to the Boston community Needham's commitment to carbon cutting clean energy and a sustainable future for it's residents. Preliminary list of Town buildings for evaluation:

##### **Needham, MA Public Schools**

- Needham High School
- Pollard Middle School
- High Rock School
- Broadmeadow Elementary School
- John Eliot Elementary School
- Hillside Elementary School
- Mitchell Elementary School
- Newman Elementary School

##### **Needham, MA Town Buildings**

- Needham Town Hall
- Police Department
- Fire Department
- Public Service Administration Building
- Council on Aging
- Needham Free Public Library
- Needham School Administration

##### **Fields**

- Claxton Field across from RTS
- DeFazio Park/Memorial Park
- Dwight Field
- Walker-Gordon



## 2.) RESPONDENT INFORMATION

Brightfields and ASP have the local knowledge, experience, availability and financial strength to successfully implement the Needham solar project and renewable energy education curriculum. Company profile forms are included in the Proposal Forms section at the end of this document. More detailed information about the Brightfields Project Team, including our financing capabilities are included below. Our capabilities and experience relative to environmental, energy, regulatory and education matters are located each in a separate section following team bios.

### a. Project Team

The key to executing a successful solar array on a landfill is choosing a development team that has proven collective experience in power development, landfill design and long-term care for environmentally challenged sites. Any minor error resulting in incomplete study or inappropriate design and operation can transform a closed landfill into a dangerous problem. Landfill failures could take years to remedy. They can be a serious and costly liability for any city or town.

Needham has an opportunity to secure a new, long-term revenue source and community asset, but only if the project secures the MADEP Reuse Permit, NSTAR Interconnection Service Agreement and Virtual Net Metering Reservation successfully - and the project is financed, built, and able to reliably operate long term, without contributing to landfill failure.

For the past 25 years, the Brightfields team has built a strong reputation on successfully completing large remediation projects and is accustomed to working with state and federal agencies, city managers, town councils and community groups at every step of the process. Our team has attained regulatory closure for brownfields in several states and it has ongoing management responsibility for seven sites and 5 landfills, including Scituate.

Headquartered and staffed in Wellesley, MA, Brightfields is pleased to be the team lead for this proposal and if selected, the Needham Project. Our partners include EPC agent ASP of Boston and Pelham, and environmental consultant Weston and Sampson of Peabody and Woburn. Resumes of the project team are included below:

### i. Brightfields

**Norman A. ("Pete") Pedersen III**  
**Managing Principal**

ppedersen@brightfieldsllc.com  
781-772-2871 (direct)

Pete Pedersen is a Managing Principal and founder of Brightfields. Mr. Pedersen has over twenty-five years of experience in law, corporate finance, and business with special expertise in corporate control transactions within the environmental industry and transactions involving environmentally impaired properties.



Prior to founding Renova, Mr. Pedersen was a corporate attorney and Vice President for Corporate Development at Thermo Electron Corporation and a Principal at EnCapital, Inc., a boutique investment bank serving the environmental, energy and engineering industries. While at Thermo, he managed acquisition campaigns, venture capital investments, and initial public offerings. He also conceived, founded and managed Thermo Electron's consulting practice for facilitating the redevelopment of contaminated properties and the mitigation of contingent environmental liabilities. At EnCapital, Mr. Pedersen originated and managed merger and acquisition and private placement engagements. Early in his career, Mr. Pedersen worked as an analyst in corporate finance at Lehman Brothers Kuhn Loeb in New York and as an attorney at Nagashima & Ohno in Tokyo and Hale and Dorr in Boston.

Mr. Pedersen is a regular speaker on redevelopment issues at the Boston University School of Management as well as at several trade and educational forums. Mr. Pedersen graduated from Amherst College, Magna Cum Laude, and he holds a J.D. degree from the University of Chicago.

**John B. Hanselman**  
**Managing Principal**

John Hanselman is a Managing Principal of Brightfields, Restoration, and Renova. Mr. Hanselman has spent the last twenty-five years in environmental development in real estate and entrepreneurial companies.

Mr. Hanselman, who joined Renova in the summer of 2003, began his career working for two different prominent New England based developers, Carpenter & Company and New England Development, where he served as Director of Finance and Acquisitions. During his tenure with the two firms, Mr. Hanselman completed over \$2 billion worth of transactions in the retail, luxury residential and hotel sectors, including the award winning Brownfields Projects at Charles Square Mixed Use Development, Cambridge MA, and The North Shore Mall, In Peabody, MA. Prior to joining Renova, Mr. Hanselman founded Active Impulse Systems, Inc., and served as President and CEO until Philips Electronics acquired the company. Mr. Hanselman then took over as President and CEO of LingoMotors, Inc. a natural language software company.

Mr. Hanselman has been an invited speaker at Harvard Business School and both MIT's Sloan Business School and Center for Real Estate Development, and speaks widely on the topic of repowering environmentally distressed land with renewable energy. Mr. Hanselman has published papers and holds patents in the semiconductor and natural language software areas. Mr. Hanselman is a graduate of Hamilton College.

**Ronald Kelly, PE, Principal, Power Development** - Ron Kelly is a Principal and Head of Development at Brightfields. Mr. Kelly is a veteran energy developer with thirty years' experience in the U.S. power market as a business developer, project manager and engineer. Mr. Kelly has worked for some of the world's leading energy developers, including Calpine, Thermo Electron and Advanced Power. Mr. Kelly has extensive experience in design, siting, operations, acquisitions and divestitures within the energy industry, where he has worked with gas turbines, cogeneration, wind power, solar power, and biomass projects and as a business developer and engineer designing power



project control systems. He has negotiated several power purchase and interconnection agreements with utilities and completed the regulatory process for developing power projects in New England and throughout the United States.

Mr. Kelly, a registered professional engineer, has an MBA from Babson College, BS in Marine Engineering from the Massachusetts Maritime Academy and served in the US Naval Reserves with active duty in the US Merchant Marines.

**Michael Singer**  
**Project Director, Environmental and Geotechnical Engineering**

Mike Singer is a Project Director for Brightfields. He is responsible for managing redevelopment projects and structuring transactions. Mr. Singer has over 10 years' experience in project management in the real estate field. He has specialized experience as a development manager in the purchase, remediation, development, and resale of environmentally impaired properties, performing due diligence and integrating remedial investigations with real estate development. He has also worked with retail, industrial and commercial end users at both Trammel Crow Company and Sapient Corporation to negotiate leases and couple development concepts with environmental restoration work. Mr. Singer is a graduate of Union College.

**Kim Martin**  
**Director of Finance**

Kim Martin is the Director of Finance for Brightfields. She is responsible for the accounting and financial reporting functions, including budget management, progress reporting and vendor, client and banking relations. Ms. Martin has over 16 years' experience in finance, accounting and financial reporting in both the public and private sectors. She has worked several years in public accounting at PricewaterhouseCoopers along with having several years of private experience in technology, manufacturing and retail.

**Marjorie Buckholtz**  
**Regulatory Adviser, State and Federal Brownfields**

Marjorie Buckholtz is Regulatory Adviser to Brightfields Development. She is president of Environmental Consulting Solutions, where she provides advice on communication, strategy and regulatory aspects regarding brownfield redevelopment based upon her experience conceiving, launching and running the National Brownfields Program at the U.S. Environmental Protection Agency, where she worked for 25 years.

In addition to serving as the first head of the National Brownfields Program (now called the Office of Brownfields and Land Revitalization), Ms. Buckholtz also served in a variety of senior level positions in both the Office of Solid Waste and Emergency Response (OSWER) and The Office of Air and Radiation (OAR).

Her work on brownfield redevelopment earned tremendous recognition for the EPA, including the Innovations in Government Award from the Ford Foundation and the Kennedy School of Government, the renew America Excellence in Government Award



and the Hammer Award from former Vice President Al Gore. Personally, she was three times awarded the EPA's prestigious Gold Medal for Exceptional Individual Service.

Ms. Buckholtz holds a Masters in Media Studies from Webster University.

## ii. ASP

### **Lyle Rawlings, P.E. President, CEO and Technical Director NABCEP Certified Installer**

In 2007 Lyle Rawlings was called "the founding father of renewable energy legislation in New Jersey," by New York Times Magazine, and he remains one of the nation's leading professionals in the field of solar energy.

An engineer with 34 years of experience in renewable energy research, design, policy advocacy, and business, Mr. Rawlings has designed and managed some of the most challenging - and some of the most innovative - PV projects in the country. In 2003 Mr. Rawlings served on Gov. McGreevy's Renewable Energy Task Force, where he successfully campaigned for the creation of the state's system of Solar Renewable Energy Certificates (SREC's). In 2009, Rawlings was a winner of the Ernst & Young "Entrepreneur of the Year" award.

Lyle Rawlings was also the co-founder of the Mid-Atlantic Solar Energy Industries Association (MSEIA) where he was instrumental in the creation of the New Jersey solar energy program, which today leads the nation in solar energy industry growth. Mr. Rawlings continues to serve as Vice President and remains active in the creation and improvement of solar energy incentives, regulations and legislation in the region.

Mr. Rawlings received a B.S. degree in Chemical Engineering from West Virginia University. He holds one U.S. patent in photovoltaic module design and has another patent for an improved module mounting system.

### **Tom Thompson, Project Manager, President of SEBANE**

Mr. Thompson will serve as Project Manager for the Saratoga project, focusing on regulatory strategy and the NYSEDA PON submission. Mr. Thompson, who is based in ASP's Albany, NY office will be the main point of contact with Saratoga and will be available as needed for meetings and project discussions.

Mr. Thompson has over 30 years' experience in the renewable and conventional energy industries in the northeast US. He has held senior management positions in the private sector, as a regulator, in the utility industry, as a manufacturer and in the not-for-profit arena. As Executive Director of NESEA, Mr. Thompson led the effort to create the Greenfield Energy Park – one of our country's first and only renewably powered public parks. While at the NYS Department of Public Service (PSC), Mr. Thompson spearheaded the creation of the nations' largest, ratepayer funded low-income weatherization program. NYSEDA continues to operate the program today.



Mr. Thompson served as President of the NY Solar Energy Industries Association (NYSEIA) from 2006 – 2009 and currently serves as a Board Member/Policy Director for the New York Solar Energy Society (NYSES) as well as Board President of the Solar Energy Business Association of New England (SEBANE). Mr. Thompson earned a BA from the State University of NY in Environmental Science (1981) and a Certificate in Regulatory Economics from the National Association of Regulatory Utility Commissioners (NARUC) hosted by Michigan State University.

**Pete Sudano, P.G., LEED-AP®**  
**Project Director**

Mr. Sudano will serve as Project Director for the Saratoga solar project. As a senior member of the ASP management team, Mr. Sudano will be responsible to ensure that the Project Manager has the internal resources and support necessary to successfully and safely implement the Saratoga solar project, and he will provide an alternate point of contact for the Saratoga team.

Mr. Sudano has over 30 years' of diversified experience in environmental and energy management. He has worked for leading companies in the fields of energy development and environmental consulting and remediation, and has been the director of project development for ASP for almost five years. Mr. Sudano has been Project Director for some of the largest solar projects completed by ASP, including the 14.1 MW McGraw-Hill Project in East Windsor Township, NJ, and the 3.2 MW Linden Solar Farm in Linden, NJ. As a Professional Geologist, Mr. Sudano will also assist with issues related to siting a solar array on the Saratoga landfill. Mr. Sudano holds a BS and MS degree in Geology from Lehigh University.

**Brendan Canavan**  
**Project Engineer**  
**NABCEP Sales Certified**

Mr. Canavan will be serve as Project Engineer, responsible for PV system design and support on all technical issues. Mr. Canavan has over four years of diversified solar PV experience in the areas of project development, design, installation and management. He has created designs and specified equipment for several dozen solar projects in New Jersey and surrounding states, and has served as Project Manager for a 1 MW solar installation for STS Tire and Auto in Somerville, NJ. Mr. Canavan holds a degree in Mechanical Engineering from Villanova University and an MBA from Fairleigh Dickinson University.



### iii. Weston & Sampson

Although the relationship is not exclusive, Brightfields and ASP have agreed to include Weston & Sampson as part of our project team, if awarded the proposal. We recognize that Weston & Sampson has significant environmental contracting experience and familiarity with the Needham landfill. Please see Exhibit 1 (b) for a list of resumes and qualifications for Weston & Sampson.



## b. Landfill Closure, Permitting and Redevelopment Experience

### Contaminated Property Redevelopment: Our History

Brightfields is a product of **Renova Partners**, its parent and a specialty real estate investment company that has redeveloped contaminated property since its founding in 2001. Renova is currently a partner to major corporate, municipal, and individual landholders. The company has purchased, entitled, remediated and redeveloped industrial brownfields, Superfund sites and landfills for Fortune 100 clients including Chevron, Johns Manville and Union Pacific. The company is one of the only institutionally funded brownfields developers in the United States. It is privately funded by its principals, in conjunction with a \$300 million joint venture with Prudential Real Estate Investors ("PREI"). PREI is the real estate investment business of Prudential Financial and is among the largest in nationwide with \$49.1 billion of gross assets under management. Renova is the only brownfields developer in the Prudential Partners program.

For the past decade, Renova has focused on commercial redevelopment of Brownfields and currently owns and maintains seven closed landfills across its portfolio of projects, two of which it built itself as part of a remedial solution. With these strengths and its track record of acquiring, remediating and redeveloping over 20 contaminated properties, the company has established itself as a leader in the brownfields market.

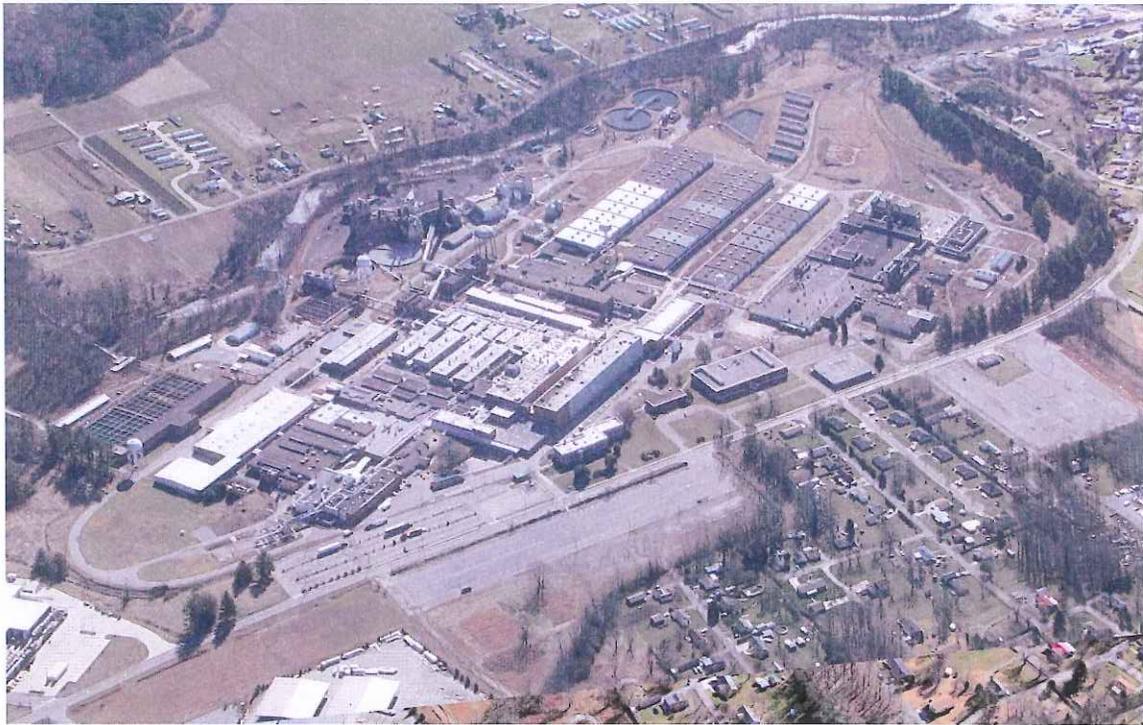
Renova has a 100% track record of obtaining regulatory closure from federal and state authorities on all the properties it purchased, which encompasses over 26,000,000 square feet of contaminated land. All of our corporate partners and municipal landowners act as our references. Please see Exhibit 7 for project summaries and Exhibit 6 for regulatory closure letters from three selected Renova projects:

- Brevard, NC
- Pittsburg, CA
- Sandpoint, ID

### **Brightfields: Born from Brownfields**

Brightfields was founded in 2009 under common ownership with Renova and veterans of the energy industry. The company was founded to leverage decades of combined experience in landfill design, contaminated property redevelopment, government relations and renewable and traditional energy projects. Using this diverse expertise, Brightfields focuses exclusively on the development of solar power on landfills and contaminated properties. Please see Appendix 6 (e) for letter of support from our endeavors in Puerto Rico and the Experience section for a list of our projects.



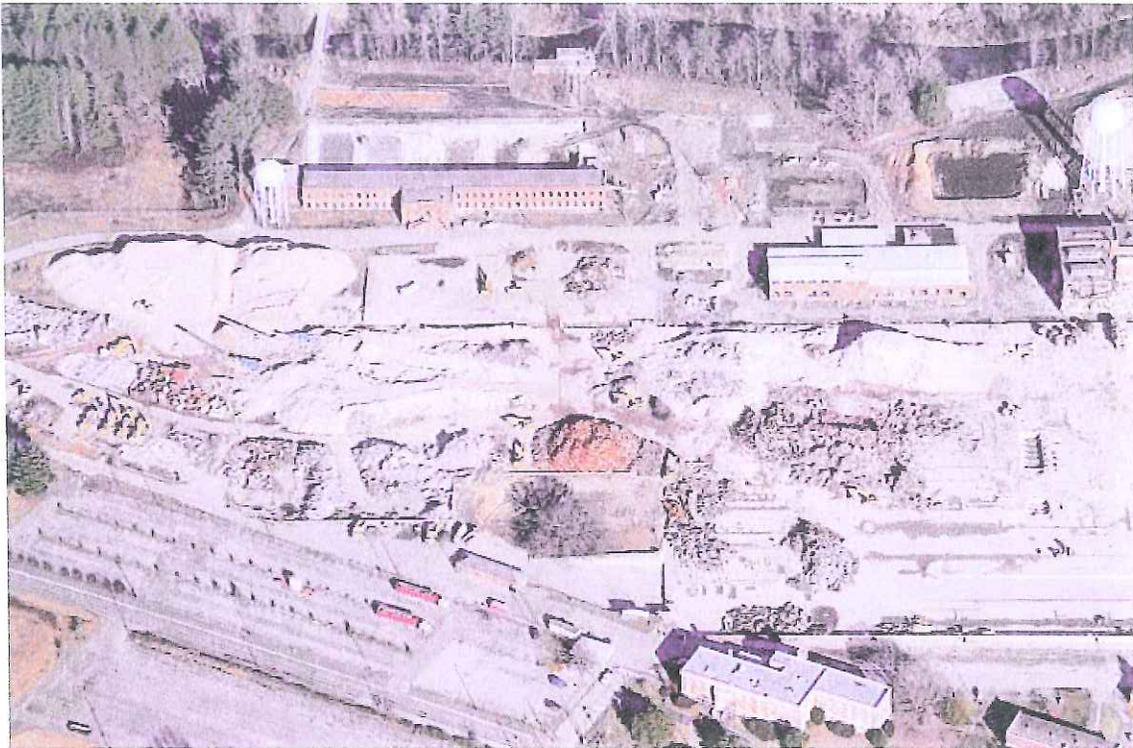


**Figure 1:** This property was formerly a flax paper mill and cellophane plant servicing the tobacco industry. There were over 2.2 million square feet of factory and warehouse space on site and 3 landfills used to store manufacturing wastes when Renova acquired the property in the beginning of 2008, as pictured here.



**Figure 2:** The Ecusta property in 2012. Renova worked closely with the US EPA, North Carolina Department of Environment and Natural Resources and local officials at all levels to ensure that a full and thorough cleanup took place.





**Figure 3:** Interim remedial progress at the northern point of the Ecusta Property, shown here in 2009.



**Figure 4:** Demolition progress is made on over 2.2 million sq. ft of buildings onsite.



## Landfill Expertise

The US EPA has developed a high regard for the competence of Brightfields and serves as one of our references. The relationship between the US EPA and Brightfields is built upon an extensive and positive Brownfields remediation history on Renova projects. Renova has constructed two landfills and has ongoing responsibility for seven:

Landfill Creation & Ownership		
<i>Description</i>	<i>Location</i>	<i>Project History</i>
Asbestos Landfill	California	Purchased capped landfill on former manufacturing site. Have managed the closed landfill since 2005.
Asbestos Armored Vault Landfill - N	California	Excavated asbestos-bearing material in foundation of two berms on property purchased. In 2006-2007, constructed landfill with materials. Responsible for the ongoing maintenance of the armored vault at the base of the north berm.
Asbestos Armored Vault Landfill - S	North Carolina	Excavated asbestos-bearing material in foundation of two berms on property purchased. In 2006-2007, constructed landfill with materials. Responsible for the ongoing maintenance of the armored vault at the base of the south berm.
Process Waste Landfill	North Carolina	Purchased a former paper mill having a capped 20-acre landfill containing non-hazardous process material. Managing the closed landfill since 2008.
Ash Landfill	North Carolina	Purchased a property in 2008 that had a 16MW coal-burning power plant. Ash from the consumed coal had been placed in a capped 20-acre landfill. Currently managing the closed landfill.
Sludge Landfill	North Carolina	Purchased a property in 2008 with a 40-acre sludge landfill under construction. Renova owns the property. Managing a third party closure and capping of the landfill. The closure is now completed.
Sludge Landfill	North Carolina	Purchased a property in 2008 having a capped 3-acre sludge landfill. Managing the capped landfill.

Please see Exhibit 7 (a) for photos of the construction process and final topography map for Renova's Sludge Landfill in Brevard, North Carolina.

In cooperation with the US EPA, we are now engaged in the solar revitalization of several contaminated sites nationwide, including a 3.0 MW solar project on a Federal Superfund site in Massachusetts, a 20.0 MW project on a State Brownfield in Carbondale, Illinois and a 20.0 MW project on a Federal Superfund Alternative site in East St. Louis, Illinois.

The East St. Louis project required negotiation of remedial closure and a final cap design that will safely support the development of a solar project. The site was formerly an Alcoa aluminum manufacturing facility and includes over 250 acres of contaminated land.





**Figure 5:** A photo of the East. St. Louis Alcoa site - a former lake that was filled with bauxite residue (red).



**Figure 6:** Capping in progress at the East. St. Louis site – the photo shows the first 2' of soil cover.

These endeavors are only possible because of our track record of successfully handling the environmental and regulatory risks inherent in developing contaminated property, including landfills. Brightfields is currently developing a 75.0 MW portfolio of solar PV on 25 municipal and Superfund landfill sites across Puerto Rico, but the most recent example of our expertise is the Scituate municipal solar landfill project, pictured on the following page.





**Figure 7:** The Scituate Municipal Landfill before site work on the ground preparation.



**Figure 8:** Preparation of the vegetative layer, gravel footing and installation of the concrete ballast blocks.



Development of a solar generating facility on a landfill requires geotechnical, environmental and energy design expertise to evaluate and plan for all potential storm water, groundwater and settlement impacts that could adversely affect all layers of a dynamic landfill and the solar array. Failure to anticipate the potential changes from the construction of the solar array could lead to project delay, power generation interruption, and possible landfill failure resulting in undue environmental hazard. Landfill failure does not happen rapidly, but from consistent stress over time, which compromises the dynamics of the closure system. Developing a project on a landfill requires an appreciation of the specific forces affecting a particular location.

With direct experience in the methods, techniques, and guidelines required for ownership, maintenance, and monitoring of landfills and contaminated sites - under state and federal jurisdictions - Brightfields helps municipalities and other landowners live problem-free for decades with their landfills. A secure landfill requires ongoing attention, especially one that integrates a solar power project. Our team carefully considers and responds to the risks attendant in conducting intensive construction on these sites and we are fully prepared to do so for Needham.

#### **Minimizing Risk to Needham**

As long-term and current landfill owners, we are supremely aware of the importance of effective maintenance and containment of liability on any contaminated site. A Brightfields proposal for a landfill solar PV system will be as economically aggressive as possible, such that the host receives the maximum benefit, while ensuring that the cost for the appropriate landfill and equipment maintenance has been reserved in the pricing through the full lifespan of the 20-year contract. Neither Renova nor Brightfields has ever abandoned any project that they started.



#### d. Relevant Solar Project Experience

Brightfields and ASP are recognized nationally for their experience redeveloping landfills and other contaminated properties, in the case of Brightfields, and developing solar arrays on many different substrates in a variety of sizes for several decades, in the case of ASP. As a result, Brightfields and ASP are now concluding a consulting engagement for the City of Rochester, NY, in which the Brightfields-ASP team is advising the City on how best to redevelop the vacant, City-owned Emerson Street landfill into a solar energy facility. The landfill has significant contamination issues, and a Rochester solar project must qualify under the current New York State Energy Research and Development Agency (“NYSERDA”) incentive program to secure the financing required for the development. Brightfields and ASP have worked together seamlessly to assist Rochester, and they look forward to collaborating on the Needham solar project.

ASP is one of the oldest and most experienced solar installers in the Mid-Atlantic region. As an EPC contractor (engineer, procure, construct), ASP has been involved with the installation of over 45 MW of photovoltaic systems, 32 MW of which are in New England. Founded in 1991, ASP now has offices in New Jersey, Massachusetts, and New York, and has installed PV systems for utility, commercial, school, municipal, federal, agricultural and residential clients. Please see the end of this section for a list of ASP’s completed solar projects.

In recent years ASP has worked with dozens of utility companies and grid managers (i.e. Independent System Operators, ISO’s) to secure the installation of PV systems ranging in size from a few kW to over 14 MW. ASP has recently completed two (2) projects in Massachusetts for 365kW and we are under contract for a third project (302kW). We are actively developing a variety of projects in Massachusetts and we are committed to constructing and maintaining a variety of solar installations in this marketplace.

Brightfields has project development expertise in multiple power generation technologies at utility scale, including solar PV. Brightfields professionals have successfully developed gas turbines, cogeneration, wind power, solar power, and biomass projects nationwide. We have executive level project development, direct private equity, energy finance, and solar investment experience. The following are some highlights of our team’s experience over several decades:

- 3.0 MW Scituate, MA municipal landfill PV array (see following page)
- 20.0 MW East St. Louis, IL Alcoa industrial brownfield PV array
- 24.2 MW PV array in Lazio, Italy’s largest photovoltaic plant
- 75.0 MW municipal landfill PV projects in Puerto Rico
- 300.0 MW combined cycle gas plant (as part of Calpine)
- 50MW natural gas plants (as part of Calpine)
- (6) Biomass projects in California and New England (as part of Calpine)
- \$500 million of project financing for power related projects
- \$200 million equity investment in SunRay
  - One of the largest solar PV development companies in Europe (sold to SunPower)





Combined with our deep background in Brownfields redevelopment, our team knows how to work with key parties to develop and construct environmentally and technically sound landfill solar energy facilities. This includes working with:

- Massachusetts Department of Environmental Protection
- Massachusetts Department of Energy Resources
- Massachusetts Department of Public Utilities
- NSTAR
- Local Regulatory, Governmental and Volunteer Community Leaders

Brightfields just completed this process with great deliberation and attention to detail for Scituate's 3.0MW solar farm. Though the utility was National Grid, the Standard Interconnection process remains consistent utility to utility in the Commonwealth. Brightfields has experience navigating this process with NSTAR for its development work on a 3.0MW system on a Superfund site in Woburn, MA. On the environmental side, MADEP met with Brightfields at the 50% design point to review the outline and work product. The final design was filed successfully on time and on schedule along with the interconnection agreement. The project received final technical comments and we received the approved Reuse permit.

For Scituate, Brightfields drafted, applied for and completed:

- The lease agreement with Scituate for the landfill property
- The net metering and power sales agreement with Scituate
- The detailed environmental study and design
- The MA DEP Landfill Reuse Permit application and approval
- The array layout and electrical one-line design for the interconnect process
- The interconnection application with NGRID
- The system impact study with NGRID
- All Scituate permits
- MA DOER, MADEP, MA DPU, FERC and ISO-NE regulatory interface

Please see Exhibit 4 for all documentation of our efforts.

Our team is committed to maintaining open communications with and responsiveness to Needham, NSTAR, MADEP, and other state and local permitting authorities. We are hands on builder-developers, who know from experience the real economic value attributable to effective teamwork and communications in achieving the goal of taking a solar project through the development process to commissioning and beyond. Brightfields is located in Wellesley, Massachusetts and managing principals, as well as all professionals and staff, are long-term Massachusetts residents. If Needham awards the Solar Farm Project to Brightfields, we are able to begin work immediately.

In the spirit of the Massachusetts' Green Communities Act, Brightfields is committed to growing our business in Massachusetts by developing solar power and job opportunities in this state. We share with municipalities the commitment to address the pressing issues of rising energy costs, carbon emissions, and energy independence for our communities and nation. Our team delivers projects on time, on budget, with transparency and respect for the priorities of all affected parties.

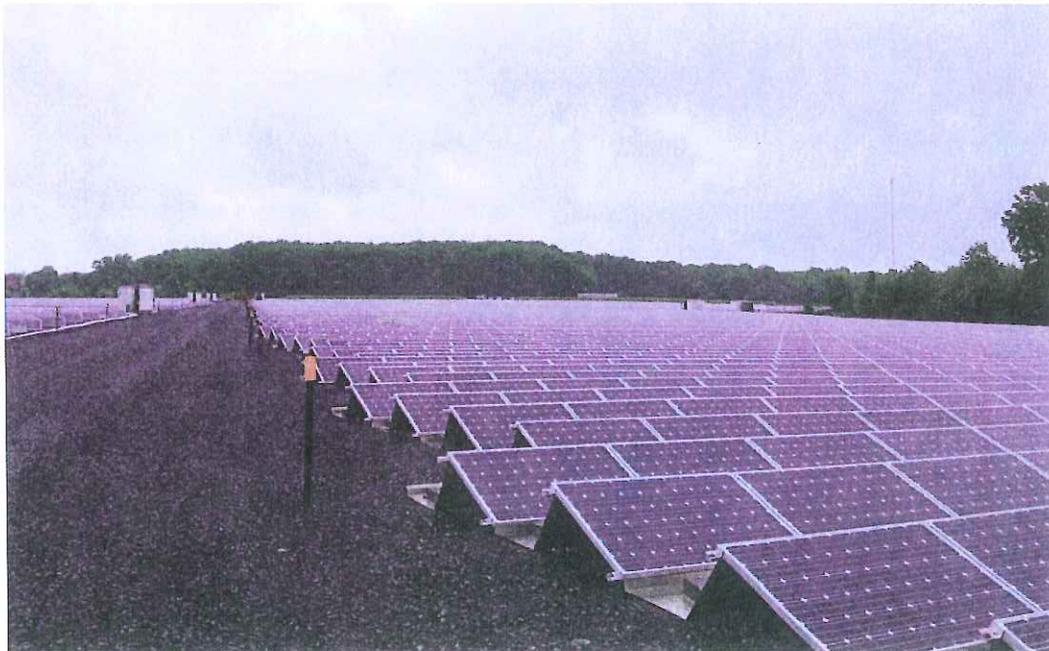


**Brightfields Solar Brownfield Power Development Experience**

<i>Project Name</i>	<i>Location</i>	<i>Size (MW)</i>	<i>Technology</i>	<i>Brownfield Type</i>	<i>Date</i>
Scituate	Massachusetts	3.0	Solar PV	Municipal Landfill	2013
Puerto Rico MPPOA	Puerto Rico	75.0	Solar PV	Municipal Landfill	2013
East St. Louis	Illinois	20.0	Solar PV	State Superfund	2014
Carbondale	Illinois	20.0	Solar PV	State Brownfield	2014
Woburn	Massachusetts	2.0	Solar PV	Federal Superfund	2015
West Hartford	Connecticut	2.0	Solar PV	State Brownfield	2015

**Brightfields Conventional Power Development Experience**

<i>Project Name</i>	<i>Location</i>	<i>Size (MW)</i>	<i>Technology</i>	<i>Land Type</i>	<i>Date</i>
East Coop	Kentucky	150.0	Peaking Gas	Greenfield	2005
Dade County	Florida	110.0	Cogeneration	Greenfield	1995
Delano 2	California	49.0	Biomass	Greenfield	1993
Delano 1	California	25.0	Biomass	Greenfield	1992
Woodland	California	25.0	Biomass	Greenfield	1992
Mendota	California	25.0	Biomass	Greenfield	1991
Whitefield	New Hampshire	15.0	Biomass	Greenfield	1987
Gorbell	Maine	15.0	Biomass	Greenfield	1986
Hemphill	New Hampshire	15.0	Biomass	Greenfield	1985



**Figure 13:** The 2 MW ASP project built with Solstice for PSE&G in Edison, NJ





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### Project List

Project	Location	Size (In kW)	Year Completed
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#### 1) UTILITIES

NJRCEV McGraw-Hill	East Windsor	14,112	2011
PSE&G Raritan Center	South Brunswick	2,225	2011
PSE&G Sliver Lake Solar Farm	Edison	2,017	2010
PSE&G Linden Solar Farm	Linden	3,197	2010
PSE&G WEA Bayonne	Bayonne	1,746	2010
<b>UTILITIES TOTAL</b>		<b>23,297</b>	

#### 2) COMMERCIAL

Depuy / Synthes	Raynham, MA	305	PENDING
WP Properties	Hackettstown and Denville	447	2013
Food Distribution Center	Edison	2,400	2013
Champion Container	Sutton, MA	40	2012
Prestige Auto – BMW/Mini	Ramsey	239	2012
Kooltronic, Inc.	Pennington	300	2011
STS Tire	Bridgewater	1,017	2011
Mercadien	Hamilton	232	2011
Joe Canal	Three locations	258	2010
Wayne Tile	Pequannock	202	2010
Penn Herb	Philadelphia, PA	119	2010
MSMJ	Lambertville,	50	2009
STI	Hamilton	54	2009
IBEW Local 456	North Brunswick	28	2009
Bell Power	Essex, CT	100	2008
Whole Earth Center	Princeton	9	2008
Champion Container Corp.	Avenal	106	2008
Champion Container Corp.	Swedesboro	53	2008
Kooltronic Inc.	Pennington	542	2006
IBEW Local 98	Philadelphia, PA	8	2006
Whole Foods Market	West Windsor	127	2005
Janssen Pharmaceutical	Titusville	500	2003
New Jersey Natural Gas Co.	Wall	35	2003
Cordis Corporation	Warren	75	2002
IBEW Local 269	Trenton	119	2002
<b>COMMERCIAL TOTAL</b>		<b>7,060</b>	

#### 3) MUNICIPAL / FEDERAL

Ridgewood MUA	Ridgewood	200	2013
USFWS/Tinicum	Philadelphia, PA	40	2012
Hackettstown MUA	Hackettstown, NJ	31	2011
Honeywell/US Army – Phase 2	Fort Dix	702	2010
Mount Laurel MUA	Mount Laurel	532	2010
Woodbridge Firehouse	Woodbridge	47	2010
Woodbridge Township	Woodbridge Township	828	2010
Honeywell/US Army – Phase 1	Fort Dix	702	2009
Marlboro Township MUA	Marlboro Township	900	2009
NJ-DMAVA/National Guard	Sea Girt	225	2009



NJ Dept. of Military and Veterans Affairs /Battle Lab	Fort Dix	100	2008
City of Orange Police Station	Orange	100	2008
North Hudson Sewage Authority	North Hudson	170	2006
Ocean County Utilities Authority	Toms River	200	2006
Liberty Science Center	Jersey City	12	2000
<b>MUNICIPAL / FEDERAL TOTAL</b>		<b>4,789</b>	

#### 4) SCHOOLS

Villa Victoria	Ewing	243	2013
Princeton Day School	Princeton	5	2012
Hunterdon Central Regional High School	Flemington	55	2010
<b>North Bergen Board of Education</b>	<b>Project Total</b>	<b>387</b>	
Horace Mann School	North Bergen	50	2010
John F. Kennedy School	North Bergen	79	2010
Lincoln School	North Bergen	103	2010
BOE Administration Building	North Bergen	36	2010
Robert Fulton School	North Bergen	40	2010
Franklin School	North Bergen	79	2010
<b>Upper Freehold Board of Education</b>	<b>Project Total</b>	<b>64</b>	
Upper Freehold High School	Upper Freehold Township	64	2010
<b>Stafford Board of Education</b>	<b>Project Total</b>	<b>200</b>	
Ocean Acres	Stafford Township	100	2010
Oxycocus	Stafford Township	100	2010
<b>Egg Harbor Board of Education</b>	<b>Project Total</b>	<b>298</b>	
Joy Miller School	Egg Harbor Township	164	2010
Swift School	Egg Harbor Township	134	2010
<b>Lawrence Board of Education</b>	<b>Project Total</b>	<b>1,238</b>	
Ben Franklin Elementary	Lawrence Township	180	2009
Eldridge Park Elementary	Lawrence Township	68	2009
Lawrenceville Elementary School	Lawrence Township	103	2009
Lawrenceville High School	Lawrence Township	376	2009
Lawrenceville Intermediate School	Lawrence Township	264	2009
Lawrenceville Middle School	Lawrence Township	217	2009
Slackwood Elementary School	Lawrence Township	50	2009
<b>Montgomery Township Board of Education</b>	<b>Project Total</b>	<b>75</b>	
Montgomery High School		75	2008
<b>Hopewell Township Regional School District</b>	<b>Project Total</b>	<b>95</b>	
Timberlane	Hopewell Township	50	2008
Bear Tavern	Hopewell Township	45	2008
<b>Branchburg Township Board of Education</b>	<b>Project Total</b>	<b>47</b>	
Central Middle School	Branchburg	47	2008
<b>North Bergen Board of Education</b>	<b>Project Total</b>	<b>355</b>	
North Bergen high School	North Bergen	355	2007
<b>Kearny Board of Education</b>	<b>Project Total</b>	<b>632</b>	
Kearny High School	Kearny	271	2007
Franklin	Kearny	316	2007
Roosevelt	Kearny	45	2007
<b>Toms River Board of Education</b>	<b>Project Total</b>	<b>2,345</b>	
Intermediate West	Toms River	510	2006
High School North	Toms River	509	2005
Hooper Elementary	Toms River	293	2005
Joseph A. Citta Elementary	Toms River	122	2005
South Toms River Elementary	Toms River	122	2005
High School East	Toms River	477	2005
Beachwood Elementary	Toms River	312	2005
<b>Bayonne Board of Education</b>	<b>Project Total</b>	<b>1,896</b>	
Bayonne Wilson	Bayonne	126	2008
Bayonne Robinson	Bayonne	95	2008
Bayonne School #14	Bayonne	110	2008
Bayonne High School Annex	Bayonne	333	2006



Midtown Community School	Bayonne	272	2005
Washington School	Bayonne	158	2005
Bayonne High School	Bayonne	310	2005
Bayonne Ice Rink	Bayonne	334	2005
Bayonne Harris School	Bayonne	158	2005
<b>Margate Board of Education</b>		<b>Project Total</b>	<b>517</b>
Union School	Margate	111	2005
Tighe School	Margate	271	2005
Ross School	Margate	135	2005
<b>Howell Board of Education</b>		<b>Project Total</b>	<b>100</b>
Ramtown	Howell Township	50	2003
Greenville	Howell Township	50	2003
	<b>SCHOOLS TOTAL</b>	<b>8,552</b>	

**5) HMFA/ LOW INCOME/ AFFORDABLE HOMES**

<b>Covenant House</b>		<b>Project Total</b>	<b>22</b>	2010
<b>Community Investment Strategies</b>		<b>Project Total</b>	<b>104</b>	
Tanyard Oaks	Deptford	20	2009	
Heritage Village	Lawrence Township	44	2008	
Royal Oaks	Mantua	20	2008	
Toms River Crescent	Toms River	20	2008	
<b>Millennia Square Zero Energy Homes</b>		<b>Project Total</b>	<b>21</b>	
Millennia Square Zero Energy Homes	Atlantic City	21	2006	
<b>Claremont - Newark Housing Authority</b>		<b>358</b>		
Park Place	Newark	123	2009	
Millennium	Newark	155	2011	
Baxter South	Newark	80	2012	
<b>Citiscapc Demonstration Homes</b>		<b>Project Total</b>	<b>4</b>	
Citiscapc Demonstration Homes	Atlantic City	4	2002	
<b>NJIT Housing Technology Demonstration Park</b>		<b>Project Total</b>	<b>2</b>	
NJIT Housing Technology Demonstration Park	Atlantic City	2	2001	
	<b>HMFA/ LOW INC./AFFORDABLE HOMES TOTAL</b>	<b>511</b>		

**6) RESIDENTIAL/AGRICULTURAL**

<b>150+ PROJECTS</b>	New Jersey	<b>1,200</b>	2005-2013
	<b>RESIDENTIAL TOTAL</b>	<b>1,200</b>	

<b>TOTAL</b>	<b>United States</b>	<b>45,409 kW</b>
<b>TOTAL</b>	<b>New Jersey</b>	<b>45,102 kW</b>
<b>TOTAL</b>	<b>Landfills</b>	<b>0 kW</b>





**Figure 14:** The 14 MW ASP project built with Solstice for McGraw Hill in East Windsor, NJ



**Figure 15:** The 3 MW ASP project built with Solstice for PSEG in Linden, NJ



### e. Capital Finance Capability

The principals of Brightfields, who combine finance roots in both debt-based project finance and equity-based corporate finance, have raised over \$3.0 billion in debt and equity financing for infrastructure transactions during their careers. Brightfields has a well-established financing track record for development projects on Brownfields. In the past, principals at Brightfields have successfully obtained project funding from private equity investors, including Prudential and Denham Capital Management, and project debt from lenders such as Calyon, GE Capital and WestLB. Currently Brightfields is in discussions with financiers about the redevelopment of two different severely contaminated industrial properties in Illinois into separate 20 MW projects, and in Puerto Rico Brightfields is financing a bundle of projects on former landfills and contaminated sites that will total 75 MW in all.

Brightfields can obtain financing for the Needham Landfill solar project reflected in its Price Proposal. The recent completion of the solar project in Scituate, with final project funding provided by Morgan Stanley, was the culmination of a series of financing transactions. Through its involvement in the Scituate financing process, Brightfields has become thoroughly familiar with all the capital sources providing funding for projects having size and financial characteristics similar to Needham, and it is in regular contact with all of them. As with Scituate, Brightfields will obtain financing for the Needham project from a proven investor like Morgan Stanley.

### f. References

As discussed earlier, any of the US EPA and State EPA professionals listed in Brightfields' regulatory closure letters will serve as a reference, as will Al Bangert of Scituate, using the information in his letter. For ASP, references are as follows:

Barry Freedman, President, Kooltronic  
bjfreedman@kooltronic.com  
30 Pennington-Hopewell Rd. Pennington, NJ 08534  
609-466-3400

Thomas Miskewitz, President, Champion Container Corporation  
208 Commodore Dr. Swedesboro, NJ 08085  
732-636-6700

Paul Morrison, Project Manager, PSEG  
paul.morrison@pseg.com  
4000 Hadley Rd. South Plainfield, NJ 07080  
973-900-2159

### g. Licensing, Insurance and Safety History

A list of all relevant state specific contracting licenses, OSHA ratings for the past three years and evidence of insurance limits that comply with Section 3.7(b) are listed in Exhibit 2.



### 3.) PROPOSED SYSTEM

The project team has reviewed the Solicitation Package as well as subsequent Addenda issued for this project. We also attended the site visit and examined the ground, roof, and parking areas and electrical connections available for the solar installation. Based on this information, we have prepared a preliminary design for an optimized PV system which we feel provides significant benefit to the town. Array layouts which illustrate proposed locations of solar panels and inverters are provided as attachments after section (3)(a) below. We are proposing three (3) options for consideration:

- Option 1 – a 2 MW AC (2.49 MW DC) PV system on the landfill, as requested in the bid specifications
- **Option 2 – a reasonable, maximum sized PV system on the landfill (3.716 MW DC), and a PV system on the Salt Shed (91.2 kW DC). (Optimum Condition)**
- Option 3 – Option 2 above, plus a two (2) solar canopies in the parking area (171 kW DC), and a PV system on the Storage Shed (22.8 kW DC).

The three (3) Options and array locations outlined above were developed to provide Needham with a range of PV system size and location alternatives. A summary of proposed PV system parameters for each is provided in the following table:

#### a. System Options

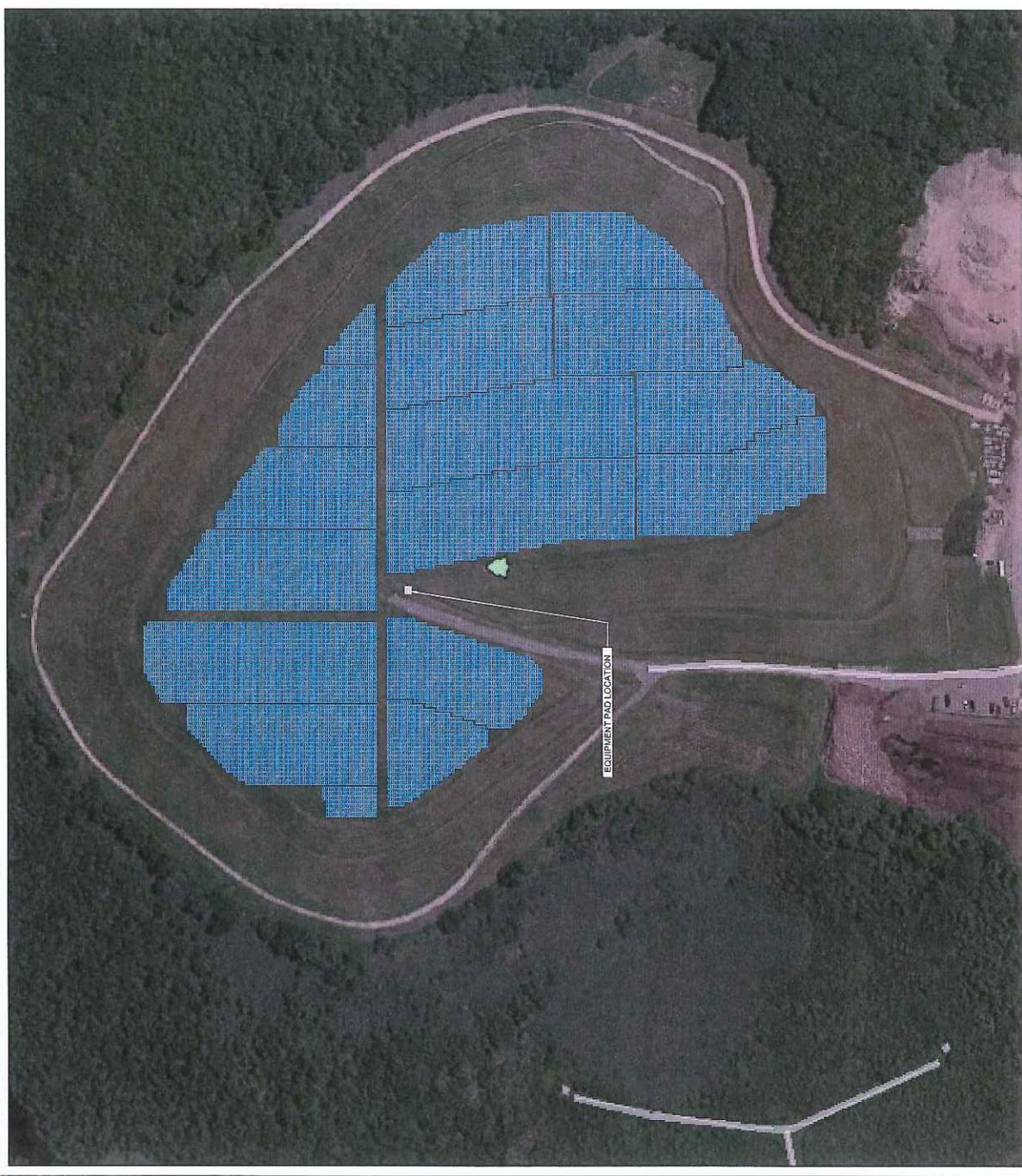
	Option 1 2 MW-AC Landfill	Option 2, 3 Maximum Landfill	Option 2, 3 Salt Shed	Option 3 Canopies	Option 3 Storage Shed
Module Rating (Watts STC)	300	300	300	300	300
Total Number of Modules	8,303	12,388	304	570	76
Total Number of Strings	437	652	16	30	4
Modules per String	19	19	19	19	19
Total System Size (DC kW STC)	2,490.9	3,716.4	91.2	171.0	22.8
Inverters	(2) Power One Ultra 1100 kW	(2) Power One 1500 kW	(2) Power One 27.6 kW (1) Power-one 20.0 kW	(5) Power-one 27.6	(1) Power-one 20.0 kW
Array Tilt (in degrees)	25	25	20, 59	7.5	0
Array Azimuth (in degrees)	180	180	180	180	0
System height above ground surface	21 inches	21 inches	N/A	~13 feet	
Derate factor	0.86	0.86	0.86	0.86	.86
Estimated Initial Year Production (kWh, from PV Watts V.1, Boston, MA)	3,416,906	5,098,901	121,542	212,983	26,438
Estimated Capacity Factor (kWh/kW DC)	1,372	1,372	1,333	1,246	1,159



**TOTAL PHOTOVOLTAIC SYSTEM:**  
 SYSTEM SIZE = 3,716.40 KW DC (@STC)  
 12,388 RENESOLA 300W MODULES  
 652 PARALLEL STRINGS OF 19 MODULES PER STRING  
 SOLSTICE MOUNTING SYSTEM @ 25° TILT  
 AZIMUTH 180°



TYPICAL SOLSTICE MOUNTING SYSTEM



SOLAR PHOTOVOLTAIC ARRAY

PRELIMINARY  
 NOT FOR CONSTRUCTION

<b>PROJECT TITLE:</b> NEEDHAM LANDFILL SOLAR PHOTOVOLTAIC SYSTEM
<b>SITE:</b> DEPARTMENT OF PUBLIC WORKS NEEDHAM AVE NEEDHAM MA
<b>OWNER:</b>
<b>ADVANCED SOLAR PRODUCTS</b> <small>Specialists in Building &amp; Supporting Energy</small> 270 SOUTH MAIN STREET FLEMINGTON, NJ 08822 908-781-5815 (PHONE) 908-781-5815 (FAX) lye@advancedsolarproducts.com
<b>NJ CERTIFICATE OF AUTHORIZATION LICENSE NO.:</b> 24GA28102200
<b>DRAWN:</b> MM
<b>DATE:</b> 10/12/13
<b>CHECKED:</b>
<b>DATE:</b>
<b>SCALE:</b> AS SHOWN
<b>DWG. NO.:</b> E-4
<b>DRAWING TITLE:</b> ARRAY LAYOUT

TOTAL PHOTOVOLTAIC SYSTEM:  
 SYSTEM SIZE = 91.20 KW DC (@\$1C)  
 304 RENSOLA 300W MODULES  
 16 PARALLEL STRINGS OF 19 MODULES PER STRING



PV ARRAY AZIMUTH = 177°



UPPER ROOF

LOWER ROOF

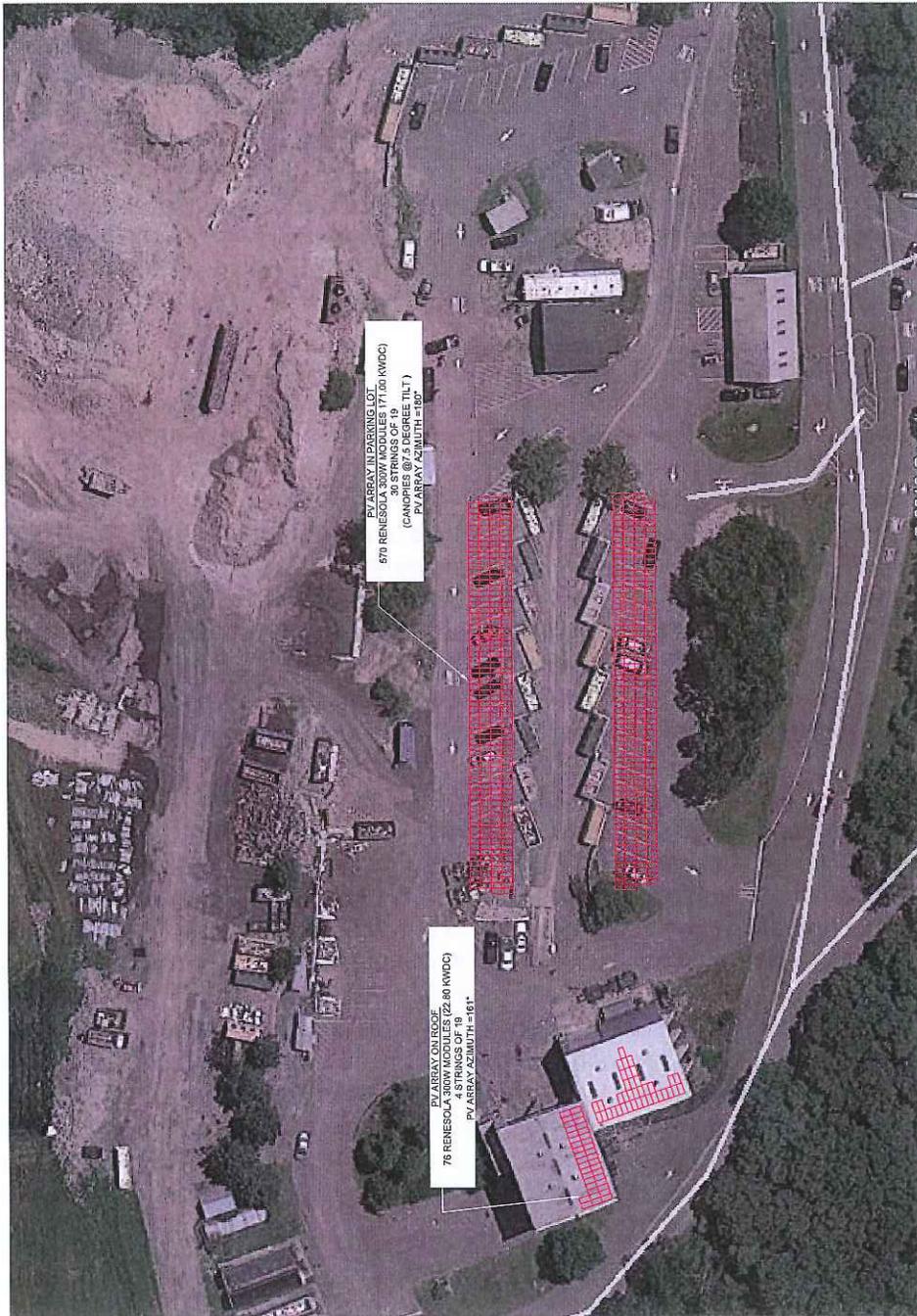
SOLAR PHOTOVOLTAIC ARRAY

PRELIMINARY  
 NOT FOR CONSTRUCTION

<b>PROJECT TITLE:</b> SALT STORAGE BUILDING SOLAR PHOTOVOLTAIC SYSTEM
<b>SITE:</b> DEPARTMENT OF PUBLIC WORKS 1407 CENTRAL AVE NEEDHAM MA
<b>OWNER:</b> DEPARTMENT OF PUBLIC WORKS 1407 CENTRAL AVE NEEDHAM MA
 270 SOUTH MAIN STREET LITTLETON CO, CO 80120 988-791-5819 (PHONE) 988-791-5819 (FAX) lyle@advancedsolarproducts.com
<b>NJ CERTIFICATE OF AUTHORIZATION</b> LICENSE NO.: 246A28102500
<b>DRAWN:</b> JMH <b>DATE:</b> 10/21/13
<b>CHECKED:</b> [blank] <b>DATE:</b> [blank]
<b>SCALE:</b> AS SHOWN <b>DRAWING TITLE:</b> E-4 ARRAY LAYOUT



**TOTAL PHOTOVOLTAIC SYSTEM:**  
 SYSTEM SIZE = 193.80 KW DC (@STC)  
 646 RENESOLA 300W MODULES  
 34 PARALLEL STRINGS OF 19 MODULES PER STRING



SOLAR PHOTOVOLTAIC ARRAY

**PRELIMINARY  
 NOT FOR CONSTRUCTION**

**PROJECT TITLE:**  
 NEEDHAM LANDFILL SOLAR PHOTOVOLTAIC SYSTEM

**SITE:**  
 DEPARTMENT OF PUBLIC WORKS  
 1407 CENTRAL AVE  
 NEEDHAM MA

**OWNER:**



270 SOUTH MAIN STREET  
 FLEMINGTON, NJ 08822  
 (908) 791-1818 (PHONE)  
 (908) 791-1819 (FAX)  
 info@advancedsolarproducts.com

**DATE:**

**CHECKED:**

**SCALE:**

**DWG. NO.:**  
 E-4-1

**DRAWN BY:**  
 PRELIMINARY ARRAY LAYOUT

## b. Design Considerations

The design of the PV systems took into consideration numerous site conditions that were observed during the site visit as well as access requirements and shading considerations. Upon further discussion with Needham officials, the Project Team is prepared to modify the PV system sizes and locations as requested, however, our initial design is based on the following considerations:

### Landfill Structure & Gas Flaring Equipment

The gas flares will need to be maintained in accordance with the DEP requirements and the manufacturers specifications. We do not anticipate any special operating procedures for the gas flares beyond what is currently required. The solar installation on the landfill will not impact the standard operating procedures of the flares and we do not anticipate an increase or change in the amount of methane gas generated by the landfill. The settlement due to waste decomposition (aka tertiary settlement) and gas generation rates will be unaffected by the installation of the solar arrays due to the minimal loading of the arrays using the Solstice system and the cover system. The arrays will be oriented such they there is sufficient room around the flares to provide for a conservative factor of safety and for any future maintenance activities that may be required. An example of how solar arrays can be integrated with an active gas collection system on a municipal landfill can be seen in our successful Scituate, MA project.

The Scituate landfill has an active gas collection system, which was seamlessly integrated into the final solar design. Specific care was given to evaluating the layout and integrity of the existing collection system, with a special focus put on the interface of between the 3-ton ballast block and the gas collection system infrastructure. Prior to the start of construction, gas lines were located and staked in the field and all excavations above the system was limited to hand-digging. Once the lines were located, we re-evaluated the thickness of the cover system to ensure that all loads affecting the gas piping would be below the manufacture's allowable stress on the piping. Lastly, we monitored the subsurface piping to ensure that the collection laterals were not damaged during construction. By proactively acknowledging and addressing the presence of the gas collection system, we were able to securely design a solar array that maximized the landfill acreage while providing a safe and practical solar installation.

There is an inherent concern when collocating high voltage electrical equipment at a facility that generates flammable gas vapors. Special attention must focus on making sure that there is not an opportunity for flammable vapors to accumulate in conduits, enclosures and/or structures that are associated with the solar generation system. In order to minimize the potential for methane gas to enter the electrical conduit system, all wiring and connections are placed above grade which provides an atmospheric break in the potential gas vapor pathway. Any gas that migrates to the top of the landfill will dissipate into the atmosphere prior to it being able to collect in the conduits. The above-grade electrical conduits will be anchored to concrete blocks/ballasts which will provide a stable and secure mounting surface while ensuring that wiring system remains isolated from the landfill gas. Additionally any at-grade crossing required due to site constraints (i.e. road crossings, vehicular access roads, etc.) will be constructed to ensure that there is a gravel sub-base zone below the conduit to eliminate any potential for gas collection.



Prior to the start of construction we will evaluate each flare and make sure that they are all operational and in good working order. A detailed inspection report will be provided to the Town and will be used to establish the systems “base-line” condition. During construction the flares will be periodically inspected and evaluated to make sure that they were not damaged by the on-going construction activities. Upon completion of the work, each flare will be tested to ensure that they are in working order and in the same condition (or better) than noted in the initial assessment. Finally, the solar array design will provide for easy and convenient access to each of the flares. Based on our history of owning and operating multiple landfills, we understand the frequent maintenance work, sampling and adjustments that are required with a gas mitigation system. As such, we will incorporate these concerns into our system design and layout.

One additional modification that will be made to the landfill arrays will be to move panels and provide appropriate pathways to ensure that access is provided to maintenance personnel for each of the methane vents. The array has been oriented directly south to maximize energy production. Additionally, the system has been designed for a tilt of 25 degrees in order to maximize energy production, while also providing a sufficient slope to shed snow during the winter.

### **Rooftops**

The combined weight of solar panels and mounting frames for a sloped roof application is typically 2-3 pounds per square foot (psf). It has been our experience in designing and installing these systems in the northeast that most roofs have the structural bearing capacity to accommodate the minor additional weight associated with an attached PV system. We understand the Salt Shed building was designed to accommodate an additional load of 10 psf for solar. We suspect the other roofs will have similar excess capacities (typically 5-10 psf) and we do not anticipate a problem with the structural integrity of these roofs, although the structural capacity of all roofs will be confirmed prior to system installation. For the tilted roof systems, the solar panels are mounted parallel to the roof surface, so the tilt angle and orientation of the solar panels is the same as the roof surface.

For situations where the panels are installed on sloped roofs that are located immediately adjacent to high-traffic areas, snow guards are installed for safety purposes. For safety reasons ASP does not recommend removing snow from the solar panels. Additionally, the energy loss due to snow is minimal as most snow melts fairly quickly from the surfaces of the modules. For the roof mounted systems we plan to locate the inverters near the point of interconnection inside the building.

### **Solar Canopies**

Solar canopies consist of steel post and rail structures that elevate and support the solar panels, typically above parking areas. Canopy posts are encased in large concrete foundations which are embedded in the ground. Canopies are designed per the local design standards and subsurface conditions. The steel design for solar canopy systems are based on the local snow and wind design loads and in most cases the tilt angle for the solar panels is limited to less than 10 degrees from horizontal. The foundations are designed based on the localized subsurface conditions of the soil which are obtained



through a geotechnical investigate. For this array we are proposing to locate the string inverters directly to the steel canopy columns.

### c. System Components and Warranties

The project team has identified the following PV system components that are optimal for this application. Cut sheets for individual components are provided as an attachment to this section.

- 1. ReneSola Photovoltaic Panels** – The project team proposes to use ReneSola 300 watt (DC) solar panels which provides the combination of high-efficiency and cost-effectiveness that is appropriate for this project. Founded in 2005, ReneSolaa is a leading global manufacturer of high-efficiency solar PV modules and wafers. ASP is currently constructing a 500kW project utilizing ReneSola modules and we have been very impressed with their level of service, quality of construction, and performance. Although ASP prefers to use ReneSola, we can suggest alternative manufacturers if for whatever reason they are found unacceptable. ReneSola provides a 25-year, industry-leading production guarantee.
- 2. Power-One Inverters** – The Project Team proposes to use inverters manufactured by Power-One for all PV Arrays. Power-One is the second largest manufacturer of solar power inverters globally and offers best-in-class performance and reliability along with a global customer care package. For the landfill, The Project Team is recommending the Power One Ultra series central inverters. For the slat shed, canopies and storage shed, the Project Team is recommending their line of 1,000V three-phase string inverters. Members of the Project Team have utilized Power-One inverters on numerous projects and we have found their products to be extremely reliable and their service department to be very responsive.
- 3. Mounting System** – For the Landfill, the Project Team proposes to use ASP's patented Solstice® mounting system which will be manufactured in Massachusetts by Solstice® Manufacturing Company, a wholly-owned subsidiary of ASP. Solstice® is an attractive, low profile, cost-effective modular mounting system that provides numerous advantages over conventional mounting systems, especially in landfill applications. Solstice® is described in more detail below and on the following pages. For the titled roofs, ASP plans to use ProSolar mounting system. For the canopies, the Project Team will select from a number of potential mounting system suppliers, depending upon final canopy size and style selection.
- 4. Data Acquisition System (DAS)** – The Project Team utilizes monitoring data acquisition systems on all projects and are experienced with the industry's leading manufacturers. For this system we are specifying a Deck Monitoring system. We have worked with Deck on numerous projects and have found their equipment to be extremely reliable and their customer service to be top-notch. The Deck system is internet-based and includes a weather station and revenue-grade, utility meter to document energy production. In addition they offer access





# SOLSTICE

## MOUNTING SYSTEM

A ballasted solar photovoltaic mounting system designed to make the construction of photovoltaic arrays easy, flexible and economical. The design is penetration-free, low cost and requires minimal labor, making it ideal for roof or ground installations. Over 35 MW of PV systems using Solstice mountings have been installed throughout the Mid-Atlantic Region.



### Design

- Solstice is a modular design and can adapt to complex array shapes.
- It can easily be configured to avoid roof-top or ground objects, or areas subject to shade.
- After deployment, individual modules can easily be removed for replacement or repair, or to deal with roof leaks, the addition of roof top equipment, skylights, etc.

### Why Choose Solstice

- Economical
- Corrosion-resistant aluminum and stainless steel
- Made in USA
- Low profile
- Customized to project
- Low point loading
- 10 year warranty
- Ballasted- no ground or roof penetrations
- Fast assembly
- Sealed wind letter and permitting support
- Short lead time

### Installation

- Solstice is the easy-to-install mounting system for roof and ground arrays. A 4-person crew can install between 240-320 supports per day.
- Solstice Manufacturing will supply all parts necessary to complete the mounting system's installation.
- Each Solstice system comes with a detailed

**Solstice Manufacturing Company, LLC**  
270 South Main Street, Suite 102  
Flemington, NJ 08822  
Tel 908-284-9600  
[www.solsticemanufacturing.com](http://www.solsticemanufacturing.com)



**SOLSTICE**  
MANUFACTURING CO.

## System Highlights:

- More than 35 MW installed
- 5 to 25 degree tilt angles available
- Ballasted non-penetrating
- Flexible
- Economical
- 10 year warranty

## System Availability:

Solstice Manufacturing is currently accepting orders for the Solstice mounting system. Each system is custom fabricated. Solstice Manufacturing can provide all equipment needed to complete your racking system.

## Contact us:

Solstice Manufacturing Co.

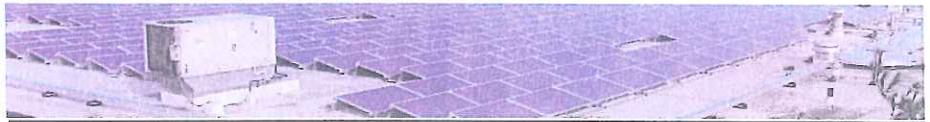
270 South Main Street

Suite 102

Flemington, NJ 08822

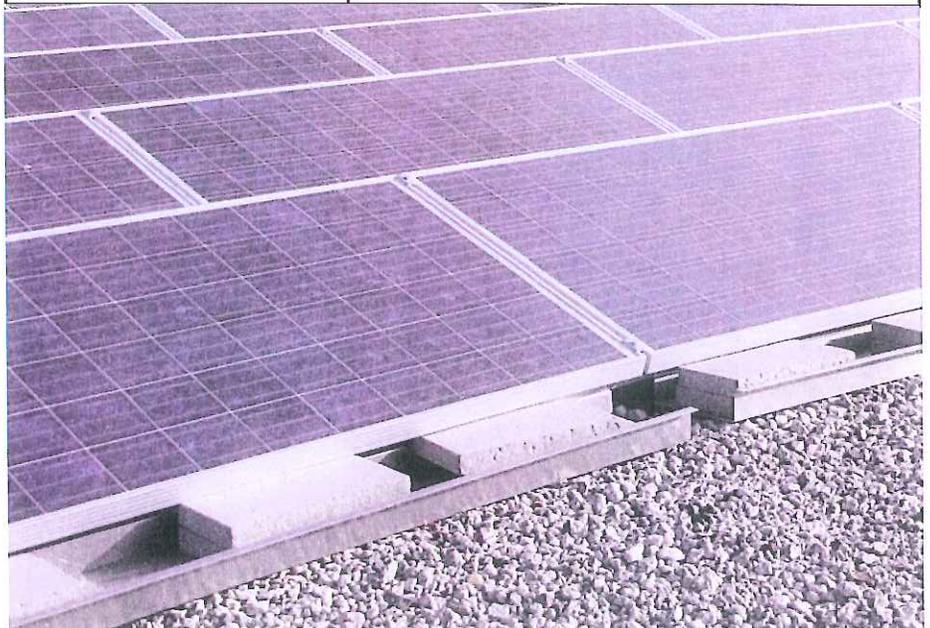
Phone: 908-284-9600

[www.solsticemanufacturing.com](http://www.solsticemanufacturing.com)



## Solstice Specifications

Average Overall Weight	4-6 lbs. per square foot
Tilt Angles	5°, 7.5°, 10°, 12.5°, 15°, 20° and 25° (Custom angles available upon request)
Material	5052-H32 aluminum alloy supports with stainless steel fastening hardware. 6063 -T6 aluminum alloy rails
Application	Roof or Ground Systems
Grounding	Wiley WEEB Clips or equivalent
Module Compatibility	Most Major Brands
Installation Rate	4 Person Crew can install 240-320 mounting supports/day.
Testing	CFD evaluated for wind and loading
Warranty	Standard 10 years
Manufacturing Location	All Solstice components are made in the USA. Mounting supports are manufactured in NJ and are approved for NJREMI incentives.



### e. Interconnection (NSTAR)

We are well prepared for a productive discussion with NSTAR and intend to leverage the members of our team with extensive experience working with DOER to assist in discussions that will lead to a successful project execution.

We understand the site currently has a three-phase 480V service with at least one utility meter on the project site. We intend to connect the low voltage systems directly into the existing electrical infrastructure that serves the local meter(s) in order to maximize energy production and minimize long wire runs. We intend to connect the landfill PV systems directly to the 13.8kV utility grid and we understand that remote net metering will be used to record the energy that is exported to the grid so that the town can be credited accordingly.

Connecting the output of a large-scale solar farm is a critical path item on the project schedule and requires approval from the host electrical distribution company. NSTAR will need to approve the design, and build the interconnection system that connects the solar farm to the distribution network. Coincident with the development efforts, Brightfields will initiate and pursue the five-month application process with NSTAR for the project's utility interconnection. The Department of Public Utilities policy stipulates the application review process must be completed in a six-to-twelve month window by NSTAR, but in practice there has been significant delay by the utilities. To begin, the project must gain site control, assess the maximum solar AC power generation from the plant and identify the proposed interconnection point. NSTAR will use this information to assess the current, voltage, phase and network characteristics of the interconnection. NSTAR will then conduct a distribution system impact study to identify any upgrades to its distribution system that may be required before the project can connect to the grid. This will lead to a Service Agreement whereby NSTAR will schedule, manage and construct any system improvements needed and install the high-voltage equipment necessary to accept the output of the solar plant. All this work must be completed within 12 months of signing the Service Agreement. Brightfields will closely monitor the IC process to facilitate on-schedule construction of the plant.

During the design feasibility stage, Brightfields and ASP will review NSTAR's net metering requirements and support submission of the interconnection application. Utility connection design drawings will be submitted to NSTAR for written approval. Typically the utility requires a single line drawing and detailed specification on the inverters. Brightfields will arrange a site inspection of the utility connection and describe the connection details with the representative of the utility. Utility connections shall meet the following standard requirements:

- IEEE 929-2000 (Utility Interconnection)
- NSTAR connection standards and procedures

During the design feasibility stage, Brightfields and ASP will review NSTAR's requirements and support submission of the interconnection application. Utility connection design drawings will be submitted to NSTAR for written approval. Brightfields will arrange a site inspection of the utility connection and describe the connection details



with the representative of NSTAR. Utility connections shall meet all NSTAR's connection standards and requirements.

Overall, we are planning for the submittal of the Standard Interconnection Request application form to NSTAR including, among other things, the equipment certification to UL 1741, a one-line diagram specific to the proposed system and the application fee. In addition, we are prepared for the subsequent Scoping Meeting, the potential Feasibility Study, and the System Impact Study that may be used to identify any adverse system impacts resulting from the interconnection process. We are aware of the respective timelines for submittal and are thoroughly prepared to move forward with NSTAR's requirements.

#### **f. Landfill Reuse Permit (MADEP)**

The landfill solar PV Project must file a special reuse permit with the MADEP to determine the potential impacts related to the installation of a solar array on MMR's landfill. The application is subject to MGL C.21A, sections 2 and 8 and C, and MGL 111 section 150A and 310 CMR 19.00. The application must demonstrate that the proposed project will not result in any adverse impacts to the landfill itself as well as to public health, safety, welfare, and the environment. The application will evaluate the scope of work for installing solar arrays and related equipment on a closed, capped landfill.

MADEP will evaluate the submittal based on the site-specific background information for the landfill closure, the existing construction certification and on-going post closure monitoring plan. MADEP will review the proposed PV site design, equipment mounting details, conduit runs, total array area, and project schedule, in light of the on-going landfill maintenance and monitoring requirements. Additionally, MADEP will examine the electrical interconnection impacts on landfill and the future site operation and maintenance plan including site security and future decommissioning. This comprehensive application process requires that Brightfields, ASP and Weston & Sampson integrate their work product to minimize any potential impacts to the landfill cap. A key component of the design will be to evaluate the geotechnical site conditions for ballast installation, cap bearing capacity, cap settlement, and cap stability. Finally, the site's storm water must be modeled and evaluated to detect any potential impacts created by the increased panel surface area and ballast blocks. Lastly for regulatory compliance, the application must evaluate wetlands impacts and post-closure maintenance and monitoring. The requirements for other permits such as NOI for land disturbance and wetland impacts and SWPPP filings, will be evaluated for applicability to the specific project and proposed design. While the MADEP permit is being completed and reviewed by the design team will be completing the final system design effort for the proposed PV installation.



#### 4.) SYSTEM PERFORMANCE MODELING, WARRANTY & SERVICE (O&M)

During the life of the system, Operations and Maintenance (O&M) services will be necessary to ensure the system continues to provide the maximum energy output and the integrity of the landfill is maintained. Our approach to O&M includes full landfill maintenance procedures and remote monitoring to confirm the PV system is performing per design requirements, combined with maintenance and service activities to assure the PV system maintains appropriate production and performance for the life of the contract and beyond.

Brightfields is currently managing seven landfills across the United States and will be responsible for providing O&M services on the leased portion of the landfill. ASP currently performs O&M services on PV projects totaling over 20MW and will be responsible for providing O&M services on the PV system.

There is no track record of mature landfill solar projects to reference when pricing a project, and many bidders are pricing to win, but not to maintain, a PV system and landfill project. Most communities have not focused on how a landfill failure or system failure would be resolved. Potentially the host could end up in a situation where there is a significant cost for O&M, unanticipated repairs or system failure and a very disinterested owner. The Brightfields ASP team has priced a realistic cost of maintenance for the full lifetime of the project.

Even with proper installation, solar systems encounter extreme weather, communication errors, loose connections, weed & vegetation overgrowth, rodent infestations, intermittent ground faults, vandalism, structural vibrations and movement, inverter and other electrical component failures. Events like these dramatically hinder a system's daily revenue generation if not properly addressed. The follow section outlines our best practices for PV system and landfill O&M that will be used for the Needham project.

##### a. Landfill Operations & Maintenance Services

The Brightfields team is proficient in the maintenance and monitoring issues associated with ongoing operations and ownership of regulated landfills. Special consideration must be given to both distinct and overlapping challenges of managing the landfills from the ground down and operating and maintaining the solar system from the ground up.

Potential issues include:

- Differential settlement
- Landfill gas mitigation
- Vegetative control
- Mowing
- Wetland maintenance
- Rodent removal
- Storm water runoff
- Leachate testing
- Ongoing monitoring
- Regulatory scrutiny, reporting, and compliance activities



Brightfields is prepared to self-perform ongoing landfill maintenance work or hire qualified third party contractors as individual circumstances dictate. Each landfill is different and Brightfields will utilize its in-house experience with landfills, combined with the best outside professional help available, to devise a secure long term solar system development and O&M plan for the Needham Landfill solar photovoltaic energy generation system.

Older landfills are especially challenging because of the volatile nature of their decomposition. Adding to or modifying a landfill requires careful planning and examination to ensure that the landfill's design and history is appropriate to support the addition of a solar farm. Our experience owning and operating landfills has also shown that careful maintenance and monitoring is necessary throughout the project's lifetime. Brightfields has considered the risks accompanying the construction and operation of a solar power facility on the Site. Given our familiarity with the challenges of working on closed landfills and Superfund sites and our confidence in ASP and Weston & Sampson, we are well positioned to construct the Project on schedule, to remain responsive to the respective requirements of MAEP and Needham, and to design, operate, maintain and monitor the landfill during the term of the lease. We are confident that we can construct the solar field described in this document, guarantee a minimum solar power production rate, and work diligently to maintain a trouble free site.

#### **b. Landfill Monitoring Program**

O&M monitoring will include routine inspection of the fencing, drainage system and soil cap. This inspection will also include an assessment of trash accumulation on the parcel. If appropriate, trash will be removed during the inspections and, if appropriate, on a more frequent basis. With respect to the soil cap, emphasis will be placed on identifying signs of erosion, lack of vegetative cover, and damage due to burrowing animals or trespassers. Maintenance will include regular grass/weed abatement in accordance with both the state and Needham's requirements and will be responsive to any aesthetic issues that might arise with nearby residents. Fertilizing and pruning/trimming the vegetative cover will be conducted on an as-needed basis. The O&M monitoring program will include a quarterly (once every three months) inspection and reporting schedule for the first year. Assuming minimal disturbances are observed, semiannual monitoring will occur once every six months thereafter. A semiannual inspection schedule will allow for evaluating site conditions during the spring and fall months, when erosion from seasonal precipitation is of most concern.

#### **c. Landfill Monitoring Personnel**

The site inspection will be conducted and the report written by the Site Inspector, a field engineer, or field geologist under the direct supervision of the Site Engineer, who will be a Massachusetts professional civil or geotechnical engineer. Michael Singer, who has overseen the remedial design and construction for over 20 contaminated under federal and state jurisdiction sites as part of Renova, will lead this effort. For a list of EPA and State EPA closure letters for projects that Mike has completed, please see Exhibit 6.



#### d. PV System Operations & Maintenance Services and DAS

Monitoring is performed using the Data Acquisition System (“DAS”) and includes state-of-the-art features to monitor details of PV System operation and to relay information to a dedicated website. In addition to periodic monitoring of system performance from the office by ASP, the DAS also includes an “alarm” function, which is sent in the form of an email. The email provides a notification to ASP and the PV System host of any critical performance irregularities. The project team will respond to any automated alarm, or perceived problem within 24 hours. ASP personnel will diagnose any problems, troubleshoot, and mobilize the service resources of the appropriate manufacturers if necessary. Our goal is to assure client full satisfaction with the performance of their solar power investment for many years to come. Please see the Education section of our Proposal for a more detailed look at the online DAS interface and example data.

#### e. PV System Monitoring Program

ASP’s maintenance and service activities will be documented in a comprehensive, site-specific Operations and Maintenance Plan to be developed for Needham. Key elements of this plan will include:

- Monitoring (as described above) to confirm system performance
- Semi-annual initial year preventative maintenance site visits followed by annual visits for the remainder of the contract.
- Regular on-line assessment of system performance using the DAS
- An annual report summarizing the performance of the PV system.

Our comprehensive O&M package includes routine site visits to assess the performance of the PV system and perform preventative maintenance. During these site visits we will perform system assessments and maintenance activities designed to ensure the PV system continues to operate optimally during the life of the project. Routine visits consist of but are not limited to the following: system inspection, performance tests, visual and mechanical checks, inverter maintenance, re-torquing connections, shade analysis, and component cleaning.

Following any site visit, an O&M Site Visit Inspection Form will be prepared and submitted to the client. This form documents the purpose of the visit, observations or actions taken during the visit, and any recommendations for follow-up activities.

#### f. Warranties

Please see System Components for a discussion of warranties as they apply to each equipment piece. Brightfields will procure the maximum available warranty for each equipment item and these would carry over to the Town in the event that Project ownership is transferred to the town.



### g. Town Training and Emergency Response

None of the waste materials contained in Needham's landfill are acutely hazardous. As such, there would be no immediate acute threat to human health or the environment if any materials should become suddenly exposed.

However, at project commissioning, Brightfields will publish a list of personnel who can be called to respond to emergencies. As discussed, immediate response actions in the event of an emergency will include the covering the landfill with a tarp and sand bags to minimize further threat to human health or the environment, pending evaluation of appropriate repair actions by the Site Engineer and MADEP.

Brightfields is fully prepared to train appropriate Needham staff on these emergency response procedures so that a fast, coordinated effort can be put in place in the event of any unforeseen event.



## 5.) EDUCATION AND OUTREACH

As the world continues to grow, renewable energy is and will continue to be a large part of our future. Solar energy is the most abundant energy resource on the planet and the U.S. solar energy industry is the fastest-growing industry in the America. Needham can sit at the forefront of this movement, as Brightfields proposes to maximize both the solar capacity of Needham's municipal property and the educational and outreach opportunity it provides.

### a. Solar and Renewable Energy Curriculum

Brightfields recognizes the importance of educating the youth about renewable energy and will develop a Solar Energy Curriculum that will be incorporated into classrooms throughout the district. We have previously developed a Curriculum for other towns who are successfully integrating our material into their classroom lectures, discussions and labs. Brightfields will work hand and hand with the teachers in the Needham Public School District to develop a Solar Curriculum that can be utilized by all teachers in varying grade levels K-12. Our proposed objectives for the Needham Curriculum are found below:

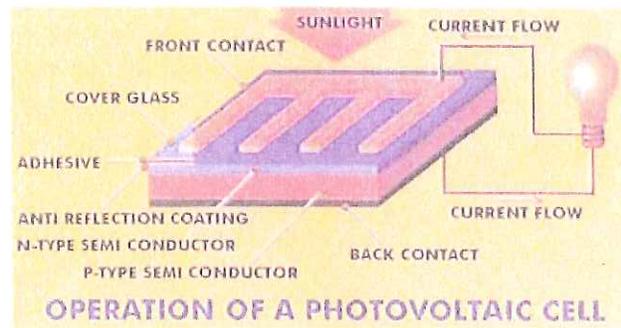
- Science: Develop an understanding of energy, including the difference between renewable and non-renewable energies. Evaluate the science behind solar energy as well as the pros and cons of using solar power.
- Brightfields/Needham Solar: Learn about the specific details of the Needham solar farm at the RTS, and the challenges behind building a solar farm on a landfill or brownfield. Understand the benefits associated with the solar carports and rooftop projects throughout the Town. Utilize the Project's online monitoring system to observe the amount of energy that is produced for Needham from solar on an ongoing, real-time basis as well as serve as an analytical tool for the Town.
- Economics: Analyze the economics behind solar energy today, including federal tax credits and the Massachusetts solar incentives such as those provided through net metering and SRECs. Learn about the utilities peak load value and how it is used in MA to keep track of the Renewable Portfolio Standards.
- Developing a Solar Project: Understand how different pieces come together to create a solar energy project.

We have previously found that these four objectives are a great layout for the Curriculum, but we are more than willing to work with Needham teachers to develop a Curriculum that best suites the individual needs of the Needham School District.



Topics and questions that we have previously addressed in our Curriculum for varying age groups include:

- What is energy?
- Where does energy come from?
- Renewable vs. non renewable energy
- Solar energy
- How does a solar panel work?
- Advantages and disadvantages of solar energy
- Inverter/transformer, AC/DC power
- Solar on a landfill/brownfield
- Design of the solar generating system
- Federal tax credits
- Net metering
- Renewable portfolio standards
- Green pricing
- MA solar market/SRECs
- Energy trends/peak load
- Project assessment
- Community engagement
- Collaboration
- Technical design & construction



In addition to the educational language, we have integrated varying activities, projects and labs into our educational Curriculum that have helped teachers in various grade levels reinforce the lesson material and provoke outside thinking. Some examples of activities we have incorporated are found below:

- Power and Energy Estimation/Watts Up Meter
- Making S'mores in a Make-Your-Own Solar Oven
- Basic Energy Transparency Slides/Coloring Energy Bookmarks Activity
- Irradiance Strip Chart Lab
- Comparing Seasonal Values of Sunlight Intensity
- Effects of the Amount and Wavelength of Light on a Solar Cell
- ISO New England Inc. Interactive Online Map
- Fieldtrips to the Needham Solar Energy Generating Sites

Since there are many different types of learners, we have also incorporated use of an online monitoring system into our Curriculum to help further engage students by providing them with access to a valuable piece of technology.

#### b. Online Monitoring Resource

In conjunction with the Curriculum, an online monitoring system will be set up that can be accessed and utilized by both students and teachers in the school district, as well as interested community members. Brightfields has previously collaborated with AlsoEnergy

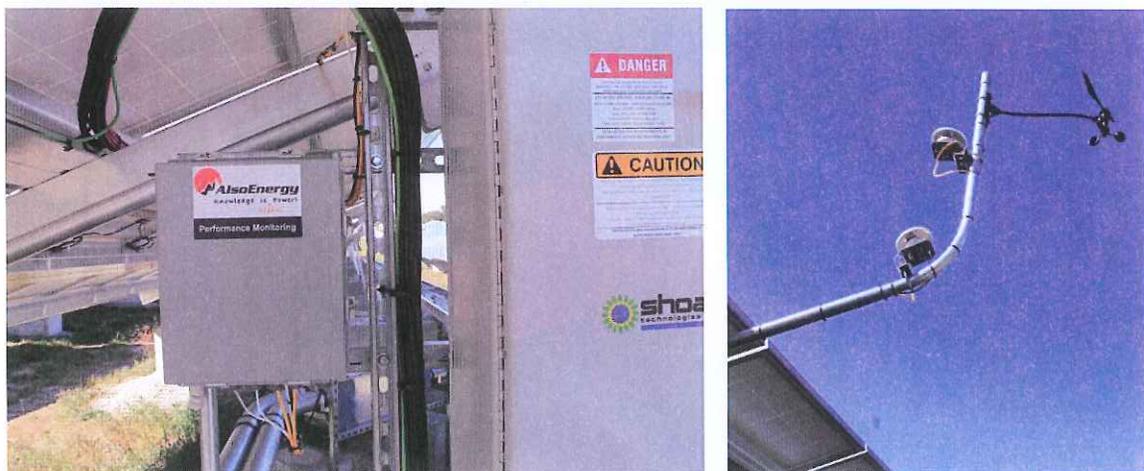
to design and implement a web-based monitoring system for the Town of Scituate. Some of the site features that are included in Also Energy's monitoring system are:

- Real-time kWh generation
- Real-time energy offset and environmental benefits of the energy produced by the solar generating system
- Multiple graphs and charts for daily, weekly, monthly, yearly and lifetime generation of the system
- Additional graphs and reports including: weather conditions at the site (wind, temperature, and irradiance), performance overtime (whole system, inverter specific, and string specific), production vs. fuels consumption, as well as many other analytical tools
- Reports that include tabular information and outcome of the site which can be downloaded into an excel file (.csv) for additional analysis and research

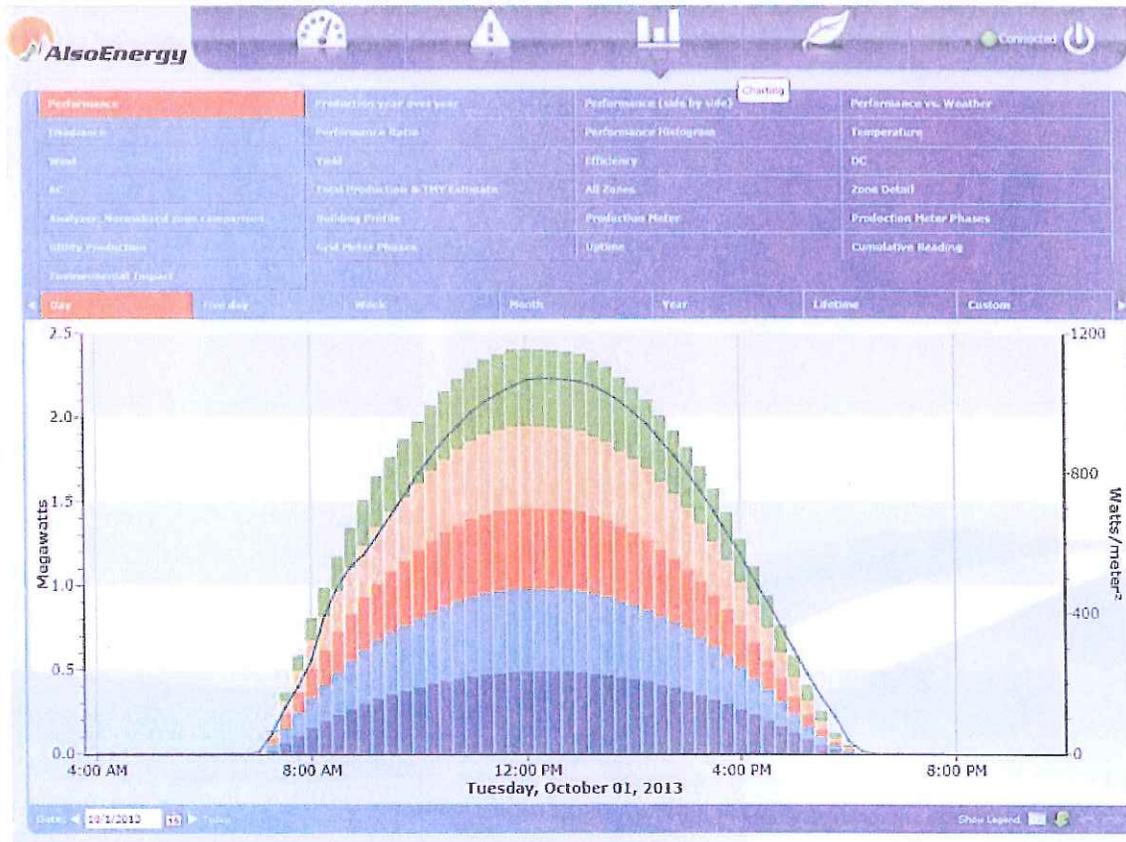
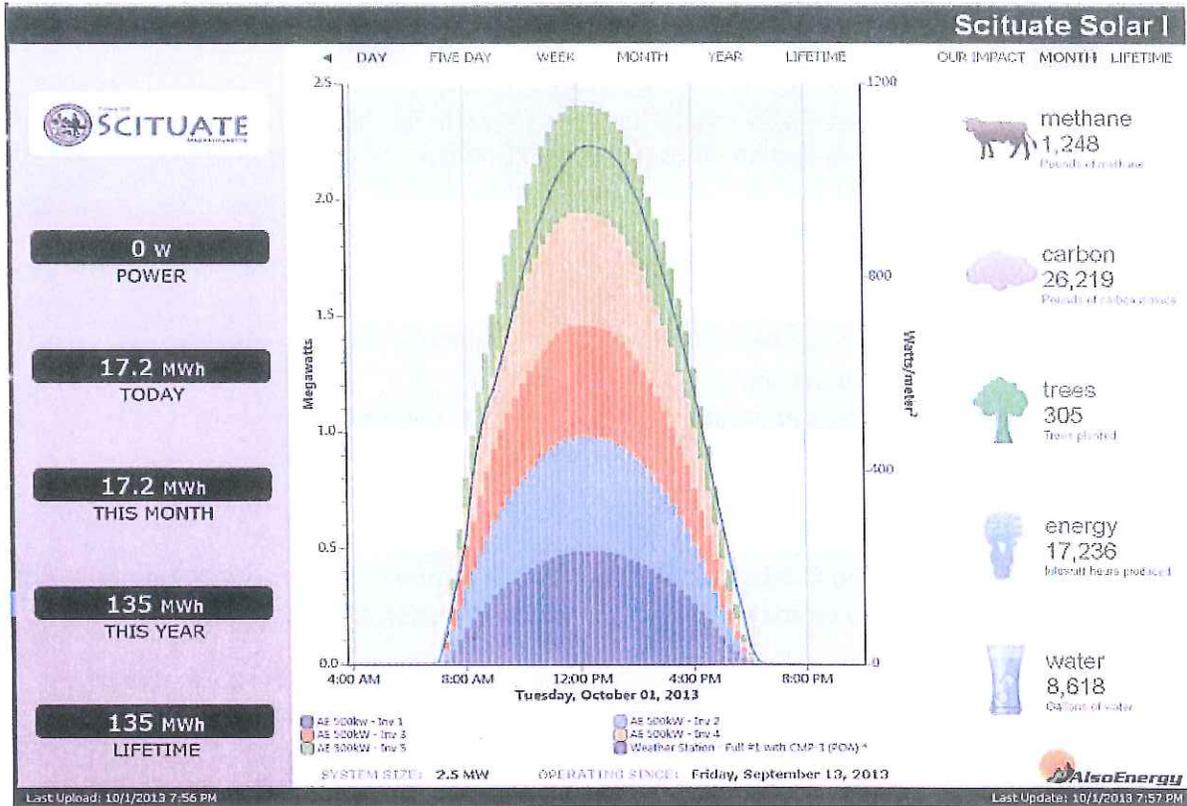
Previously we have organized two separate monitoring websites, which vary in depth and substance. For Needham, Brightfields will create two similar online monitoring systems.

The first monitoring site would be a simpler site intended for a student audience grades K-6. The second monitoring site would be more complex and provide viewers with more in-depth analysis and tools. This site would be intended for a student audience grades 7-12, as well as interested community members. Sample screen shots are included on the following page.

Both online monitoring systems will be customized for Needham, including the town logo and town colors. There is a possibility to add additional features and capabilities if the town elects to do so.



**Figure 16:** AlsoEnergy monitoring equipment (left) and a pyranometer (right) to track insolation, installed at the Scituate site

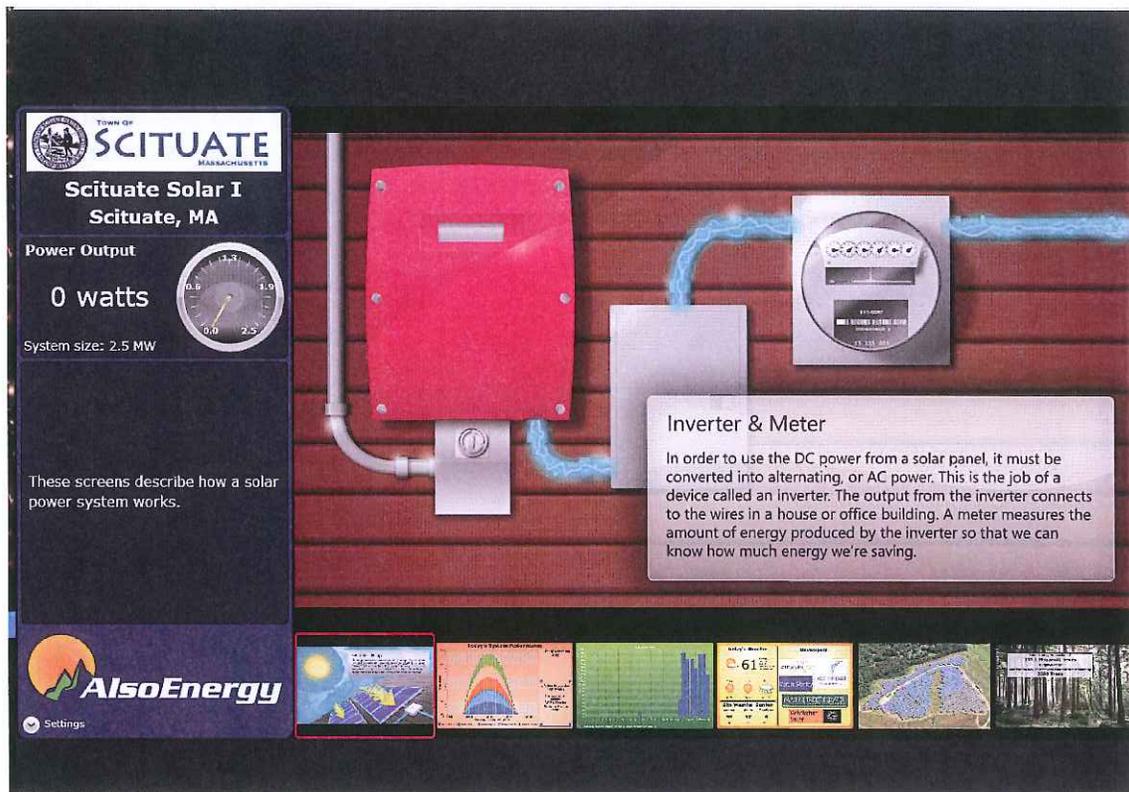


### c. Kiosk & Public Tours

In addition to the online monitoring system to be utilized by the Town's school and community members, a kiosk will be set up at the RTS which will include:

- Real-time data (or near-real time) energy generation
- Daily, monthly, and lifetime performance output of the system(s)
- Current weather conditions
- A brief introduction of how electricity is generated and transmitted on site
- Environmental benefits of the system
- Photos of the site including aerials

Similar to the online monitoring system, Brightfields has also previously designed a kiosk for the Town of Scituate that includes a description of how the system works in addition to the hard data. An example is shown below:



Brightfields is open to the possibility of additional LDC/LED panel screens in locations outside of the RTS and will discuss these options with the Town if they choose to do so.



#### d. Additional Outreach Opportunities

We hope to see a Needham that is as proud and enthusiastic about the Project as we are, and will work hard to ensure that community members are involved in the process. It is important to us that the community members feel involved in the project and have a basic understanding about what will be built at the RTS and potentially throughout their town. We are eager to collaborate with the Solar Energy Exploratory Committee, the Green Needham Collaborative, the Needham Public School District and the rest of the Needham community to see the Town take full advantage of this opportunity.

We would be happy to host a public educational lecture about solar energy generation and the Project prior to construction where community members interested in renewable energy, or just those interested in learning, may attend and ask questions. At the meeting, we will discuss details about the Site and what goes into a developing a solar project including, but not limited to, the science of solar energy generation, economics behind solar energy, and the solar energy development process.

Upon completion of the project Brightfields will host another gathering at the RTS where we will introduce the kiosk to community members, give a walk-through of the actual solar site at the RTS, discuss solar carports and rooftop installations, and answer any additional questions individuals may have. We believe that this meeting is essential for a town because it will allow community members to see the energy generating systems first hand and understand from where the data from the DAS is derived.



## 6.) EMSA EXCEPTIONS

Brightfields has reviewed the EMSA and is fully prepared to satisfy its requirements, subject to a few exceptions. In accordance with Needham's request that any changes, objections or comments to the EMSA (Attachment E) be specifically noted in the proposal submission, our exceptions are listed below:

### 1.) System production guarantee

Brightfields will guarantee 90% of the expected annual electricity output during each year of the Energy Management Services Agreement ("EMSA"), adjusted annually for a degradation factor.

### 2.) Measurement and verification protocol

Brightfields and ASP have addressed the monitoring protocols in the project description elsewhere in this Proposal. Brightfields does not intend to perform these functions in a manner inconsistent with what is spelled out in the EMSA.

### 3.) Monetary energy production shortfall obligation

Brightfields understands the need for Needham to receive compensation in the event it fails to deliver the guaranteed annual electricity output. In Scituate, the shortfall obligations were capped at an amount that (i) provided very meaningful incentive for Brightfields to meet its obligations but (ii) still enabled Brightfields to obtain financing for the project. Brightfields will be heavily incentivized to fulfill its production output guarantees, and it will pay Needham a penalty for its failure to do so.

### 4.) Insurance, Prevailing Wages, Subcontracting, Bonding, Indemnification, Compliance with Laws, Governing Law and Venue, Standard Contract Terms

Brightfields understands and is prepared to comply with all the insurance requirements appearing in the EMSA. Brightfields also understands the implications of utilization of prevailing wages, and the associated labor cost is reflected in Brightfields' Price Proposal. Brightfields has reviewed the RFP requirements regarding selected EMSA provisions, as well as the EMSA provisions themselves, and it is familiar and comfortable with the concepts of the EMSA.



## RENOVA PARTENERS LLC

### Company Profile:

- (a) Founded in 2001
- (b) Private Ownership Status
- (c) 10 Employees
- (d) Corporate Office     ◦ 40 Walnut St., Ste 301 Wellesley, MA 02481

## BRIGHTFIELDS DEVELOPMENT LLC

### Company Profile:

- (a) Founded in 2009
- (b) Private Ownership Status
- (c) 10 Employees
- (d) Corporate Office     ◦ 40 Walnut St., Ste 301 Wellesley, MA 02481

## ADVANCED SOLAR PRODUCTS

### Company Profile:

- (a) Founded in 1991
- (b) Private Ownership Status
- (c) 27 Employees
- (d) Corporate Office     ◦ 270 S. Main St., Ste 203 Flemington, NJ 08822
- (e) Local Offices       ◦ 103 Playstead Rd. Medford, MA 02155, 1 Employee
- 306 Amherst Rd. Pelham, MA 01002, 1 Employee
- 30 Irving St. Albany, NY 12202, 1 Employee

**Familiarity with Needham:** Weston & Sampson has a long history of providing solid waste, landfill, and transfer station engineering services to the Town of Needham. Since the mid-1990s, we have provided consulting services at your landfill to include engineering assistance, compliance auditing, landfill design, environmental monitoring, risk assessment, construction management, and swale repair design.

Weston & Sampson is currently overseeing the construction of a new Salt Storage Shed at the Recycling Transfer Station (RTS) located at 1407 Central Avenue. The construction is expected to be complete at the end of October. We have also recently completed the design and permitting of a vehicle storage garage to be located at the Department of Public Works offices at 470 Dedham Avenue. Through these projects, Weston & Sampson has gained a thorough understanding of the town's regulations, including the local wetland, zoning, and planning board regulations.

In addition to our work for the salt shed, we have provided transfer station design services at the RTS, including an access study and traffic analysis, along with ongoing transfer station inspections. We have also assisted The Town of Needham's recreation department with on-call pool repairs, filter repairs, compliance services related to the *Virginia Graeme Baker Pool and Spa Safety Act*, and consulting for improvements to the Newman School playing fields.

Currently, Weston & Sampson is completing a feasibility study to identify a series of refurbishment options at the Rosemary Pool complex for the Town of Needham. We have also just completed permitting and final construction documents for a municipal parking lot facility to be constructed on Lincoln Street, adjacent to the Needham Police Department.



**TOWN OF SCITUATE**

*Department of Public Works*

Albert G. Bangert  
*Director*



600 Chief Justice Cushing Hwy.  
Scituate, Massachusetts 02066  
Telephone: (781) 545-8731  
Fax: (781) 545-8704

September 25, 2013

Ms. Carys Lustig  
Supervisor of Administration  
Needham Department of Public Works  
Public Services Administration Building  
500 Dedham Avenue  
Needham, MA 02492

**SUBJECT: Brightfields as a Solar Developer**

Dear Ms. Lustig,

I understand that Brightfields Development is submitting a response to Needham's RFP to build a solar array on your closed landfill. This note is to provide you with Scituate's perspective based upon our experience with Brightfields on a project similar to yours.

**BACKGROUND:** As the Director of Public Works I provided professional staff support to the Town's Renewable Energy Committee in their endeavor to bring a large-scale solar array to Scituate. After we issued the RFP in August 2010, the Committee received nine high quality responses. Our key concern in selecting an energy partner was to find the one that:

- A. had demonstrated significant experience in working on capped landfills.
- B. had experience in working effectively with the various state and local permitting agencies.
- C. could obtain financing to complete the project in a timely manner.

**SELECTION:** After evaluating all proposals and interviewing the majority of the firms, the Energy Committee selected Brightfields Development LLC to be our solar developer. They observed that Brightfields, through its sister company Renova Partners, had constructed, owned and managed the operations and maintenance of several landfills on various properties all over the country. We felt that they demonstrated an unmatched understanding of the geotechnical challenges associated with integrating a solar system with our landfill. Following the RFP competition, I was pleased by the straightforward, balanced and efficient set of negotiations that led to the execution of the lease and power purchase agreements for the project in February 2011.

EXECUTION: Since then, Brightfields and Scituate have worked together closely to achieve our goal of installing a safe and reliable solar system on our Driftway landfill. Through the course of our involvement, Brightfields fulfilled its promise to obtain all the major permits for the Scituate solar facility, locate financing for the project and provide ongoing construction oversight through the completion of the construction process. After the principal equity partner was brought in, they have remained firmly involved in the project and have worked consistently and diligently to help Scituate overcome obstacles impeding its completion. The result of our combined efforts has been realized: the Scituate 3MW solar facility is installed, connected to the grid, and producing pollution-free electricity!

PUBLIC EDUCATION: Apart from the obvious financial and environmental gains to the Town, our schools will also be benefitting from this project. Brightfields agreed to develop a general energy and renewable energy education curriculum, and they are currently helping Scituate instructors with the implementation of the educational materials. To further broaden the education effort, Brightfields is also managing the design and installation of an information kiosk at the Scituate Town Hall that will provide real-time information on the Scituate project to the Town's residents and the local community.

From our original discussions with Brightfields in 2010 during the RFP process until today, the company has operated in a responsible and transparent manner, informing Scituate on a regular basis regarding the progress of the project and remaining available to answer any questions the Town had. They have consistently demonstrated a high level of competence in completing the various stages of the project and have always operated with integrity in tackling whatever challenges arose.

There is no established pattern of solar development in Massachusetts as of yet, and we are glad to have had Brightfields as a trusted partner throughout the development process. Based on our experience, I recommend Brightfields for the Needham project.

Please do not hesitate to call me should you have any questions on Scituate's experience.

Sincerely,



Albert Bangert  
Director of Public Works  
Town of Scituate  
781-545-8831  
abangert@town.scituate.ma.us

PRESENTED TO THE SOLAR ENERGY EXPLORATORY  
COMMITTEE AT AN INTERVIEW ON 10/17/2013



## Response to Questions

Town of Needham Solar Exploratory Committee

October 17<sup>th</sup>, 2013



- 1. Please describe the structure of the partnership and the various roles of the participants and its sub- contractors. Discuss where the "team" has previously worked together and the relationship of the parties.***

The contracting entity will be a single-purpose LLC owned 100% by Brightfields Development LLC ("Brightfields"). We propose to name the entity Needham Solar I LLC ("Needham Solar"). Once the Energy Management Services Agreement ("EMSA") has been executed by the Town of Needham and Needham Solar, the Brightfields team will finalize its financial arrangements with Morgan Stanley through a Membership Interest Purchase Agreement ("MIPA"). Separately, Brightfields will negotiate service contracts with environmental contractor, Weston & Sampson and EPC consultant, Advanced Solar Products ("ASP") setting the scope of the responsibilities of those organizations in developing the Needham project. The MIPA will delineate the rights and obligations of Needham Solar and Morgan Stanley in relation to the obligations of the Brightfields team in the EMSA. Brightfields and Needham Solar will retain the responsibility for fulfilling the obligations described in the EMSA, and Brightfields and Morgan Stanley will allocate the financial interests of the respective parties in the Needham project. Needham will work with the Brightfields team, including Weston & Sampson and ASP, from negotiation of the final terms of the EMSA through commissioning of the Needham solar project, and it will also have the financial commitment of Morgan Stanley supporting completion of the project.

- 2. It is a requirement that the cap at the landfill shall not be penetrated under any circumstances. Please discuss whether there are any exceptions to such requirement necessitated in your proposal.***

We fully understand this requirement. As evidenced by the design and construction completed at Scituate landfill, the landfill liner was never penetrated and only minor excavation was completed in the vegetative layer of the capping/cover system. As detailed in our original proposal, we are planning on using the Solstice mounting system for the Needham project. This system effectively increases the thickness of the capping system by covering the entire solar array area with a geotextile fabric and 2 to 4 inches of crushed stone. Of all the systems proposed, the Solstice system and the associated installation methodology will provide the maximum protection for the existing cap/cover system, while ensuring that all conduit runs, electrical piping and solar arrays are installed completely above grade.



**Solstice Racking System**



**Solstice Racking System**

- 3. The landfill contains gas collection/dispersion piping system beneath the cap. Please confirm that your firm will guarantee that during construction and installation of the system, and during the entire term of the EMSA, such piping system shall not be disturbed.**

The project that we designed and completed in Scituate also had an active gas collecting system running throughout the landfill. In order to ensure that the subsurface piping would not be impacted by the proposed solar arrays, we completed detailed geotechnical and loading calculations taking into account total loading exerted by the ballast on the piping system. Additionally, all active gas vents were protected during construction by safety fencing and all excavation work near any of the gas vents was completed by hand to verify both location and depth of the collection piping. Lastly, as noted above, the Solstice system proposed by Brightfields and ASP actually **increases** the cover thickness over the existing gas collection system and minimizes/eliminates excavation into the existing cap/cover system. The proposed Solstice ballasted mounting system can be installed with no ground penetrations, and has a low average point loading of 4-6 lbs/sf (0.03-0.04 lbs./sq. in.), and a maximum point loading of approximately 25 lbs./sf. (0.17) lbs./sq. in. maximum).

- 4. Please discuss your firm's approach to supporting the Town if repair of the gas collection/dispersion piping system is necessary.**

**a. Specifically, will your firm remove and replace panels at the Town's request?**

Brightfields and ASP will fully support the Town if repair of the gas collection/dispersion piping system is required. Due to the light-weight and malleability of the Solstice system, individual panels, supports, and ballasts can be moved easily without heavy equipment. For example, an experienced three (3) person crew can remove and reinstall approximately 64 solar panels per day. In the event that arrays need to be relocated and/or removed to facilitate gas collection system repair work, Brightfields will work with the Town to facilitate the work.

**b. What, if any, are the cost and contractual obligation implications?**

As long as the work is coordinated with Brightfields, completed in a reasonably expeditious manner and of limited extent, we do not anticipate contractual implications.

- 5. Please provide an updated site plan for your optimized project that superimposes the aforesaid underground piping system on the layout drawing for the system for the Town's review. Please also demark all aboveground components of the gas dispersion system including flares.**

Please see the handout for the requested layout. The updated Site Plan superimposes the underground piping system and the gas flares. Please note that the array layout is based on available PDF drawings and may be modified slightly upon a review of available CAD drawings and a more detailed field inspection.

**6. Please discuss your approach to run and support the cable raceways, and connection to the inverter/transformer system.**

The Solstice system is a ground-mounted system with the panels and the support racks mounted directly on the gravel sub-base. The wiring and cable raceways will be mounted directly on small ballast blocks installed on top of the gravel cover. Connections to the inverters/transformers will also be fully above grade to ensure that there is no chance of methane gas collecting in the associated enclosures. Concrete pads that will be used to support the inverters/transformers will be poured such that there is adequate air flow beneath the concrete to mitigate the chance of explosive vapors entering the piping system. Lastly, inverter/transformer piping will enter the equipment from the side (opposed to the bottom) to further ensure that there is no potential commingling of vapors and high voltage electric current.



**Solstice System Conduit Runs**



**Scituate Poured Concrete Inverter Pad**



**Scituate Finished Inverter Pad**

**7. For any panels that your firm intends to install on the sloped sections of the landfill cap:**

**a. What measures will be taken to prevent erosion and/or damage to the cap?**

As Brownfield developers and owners of 8 landfills, we constantly evaluate how best to integrate redevelopment opportunities with underutilized properties. When we evaluated the Needham landfill site, we did not feel that we could ensure the long-term viability of the landfill by extending the solar arrays down onto the sloped sections of the landfill. We have evaluated many systems that "on paper" demonstrate their functionality to be installed on the steeper slopes but have yet to find one that meets our protective criteria.

As outlined on the current proposed Needham layout, we have concentrated the solar arrays on the top of the landfill, taking advantage of the relatively flat grades and open areas. The installation of the Solstice system requires **no excavation** and will actually increase the thickness and durability of the existing cap/cover systems. The existing vegetation will be cut very short and the entire "array area" will be covered with a geotextile and 2-inches to 4-inches of ¾-inch crushed, washed stone. This will provide an excellent working surface for the installation crews and will mitigate any potential erosion issues both during the construction of the solar facility, and into the future.

**b. What assurance will be given to address any cap disturbance created by presence of the panels?**

As outlined above, we do not intend to install any panels on the sloped sections of the landfill due to our concern for the long-term viability of the landfill integrity and the increased potential for a shear/sliding-type failure.

**8. Please discuss whether the warranties on all installed equipment including, but not limited to, the arrays, the inverters etc. be transferable to the Town, or Town's designated agent(s) upon buy-out or transfer in the event of a default.**

The warranties on all project hardware will be transferred to the Town or its agents upon a buy-out or transfer in the event of a default under the EMSA. These provisions will be included in the final EMSA to protect equipment replacement risk in the event of such a transfer or buy-out.

**9. Please specify which equipment your firm intends to purchase extended warranties.**

**a. If extended warranties are not purchased for the inverters, how does your firm intend to address useful lifetime issues?**

We are purchasing extended warranties for the inverters that cover full replacement cost for the first 10 years and have reserved full replacement value thereafter for balance of the term of the EMSA.

The photovoltaic panels have a standard 25-year warranty.

***b. If extended warranties are not contemplated under your proposal, please provide a price and source for purchasing such extended warranty.***

N/A

***10. Please discuss your firm's guaranteed output commitment particularly as it relates to any anticipated downtime of equipment during the term of the EMSA.***

Our guaranteed output already takes into account any anticipated downtime of equipment.

***11. Please discuss your firm's approach to financing the project. Specifically:***

***a. Will your firm fund construction directly?***

Yes, we will fund construction directly.

***b. To the extent your firm is relying on both debt and equity financing from a reputable lender/investor, and if not already provided in your proposal, please provide a letter from the lender/investor confirming their interest to finance the project including the maximum project size the lender/investor is willing to commit and the time duration the commitment is good for. Please note that such letter should at minimum address the investment level to fund the Optimized project and any Additional Locations your firm proposed.***

Please see letter on the following page from Morgan Stanley confirming interest in financing the Needham Project.

**Morgan Stanley**

2000 Westchester Avenue, 1<sup>st</sup> Floor  
Purchase, NY 10577

October 15, 2013

Dear Sir or Madam,

Please be advised that MS Solar Solutions Corp. ("MSSS"), an indirect, wholly owned subsidiary of Morgan Stanley (NYSE: MS), is currently in preliminary discussions with Brightfields Development, LLC ("Brightfields") to arrange and/or provide the construction and permanent financing to a ground mounted solar array on a leased municipal landfill in Needham, Massachusetts. MSSS and Brightfields have a strong working relationship and are currently completing development of a 3.0MW solar project on a landfill in Scituate, Massachusetts.

Final MSSS financing approval will be contingent on mutually acceptable definitive documentation, market movement, acceptable legal and credit review, all applicable regulatory approvals, senior management approval, and final site due diligence, including structural and geotechnical engineering. We look forward to the next steps in the process. Please do not hesitate to contact me.

Sincerely,



Tina Chung  
Vice President  
Morgan Stanley

**12. Decommissioning Assurance is a requirement of the draft Zoning By-Law. Is the cost of decommissioning, removal of the entire system and restoration at the end of contract/lease term included in the current pricing proposed?**

**a. If yes, please state the decommissioning value for the Optimized project and any Additional Locations your firm proposed.**

\$100,000 Decommissioning Assurance in the form of escrow or a bond.

**b. If no, please provide the amounts listed in part a above and discuss how such amounts impact your pricing proposal on a \$/kWh basis.**

N/A

**13. Please discuss whether your pricing proposal includes monitoring and maintenance of the landfill as will be required in the DEP Re-Use permit?**

Our pricing includes the cost of monitoring and maintaining the areas covered by the solar arrays as outlined in the DEP Re-Use Permit. We will monitor and control any weed growth through the crushed stone, repair any erosion and/or settlement within the limits of the solar arrays. Additionally, we will complete the required DEP inspections and reporting requirements pursuant to the DEP's re-use permit approval for the solar array areas.

**14. Please provide the following assumptions supporting your price proposal for the Optimized project:**

**a. Interconnection costs expected under the ISA.**

To clarify the parenthetical part of our proposal we said, "costs to the Buyer not to exceed \$100,000," but that was for the baseline 2.0 MW system. The actual interconnection costs we priced in were \$50,000/MW, so the optimized 3.8 MW system has an expected interconnection cost not to exceed \$190,000.

**b. Permitting costs.**

Our Price Proposal includes the Town of Needham building and electrical permit costs to the Buyer not to exceed \$20,000/MW, consistent with other landfill solar projects we have completed in Massachusetts.

Total costs of obtaining the MA DEP Re-Use Permit and ancillary environmental submittals are assumed to be \$75,000.

**c. SREC2 values in \$/kWh in years 1-10 and 11-20.**

- i. Years 1-10: \$0.15/kWh (Net of SREC Factor)
- ii. Years 11-20: \$0.05/kWh (No REC Factor applies)

**d. Other costs that your firm has made assumptions which if ultimately are greater you intend to pass on to the Town.**

We do not anticipate passing along any other costs that exceed our assumptions.

**15. Please discuss if your firm is proposing to provide 'Kiosks' at key locations for educational outreach.**

**a. How many kiosks are included in your Price proposal?**

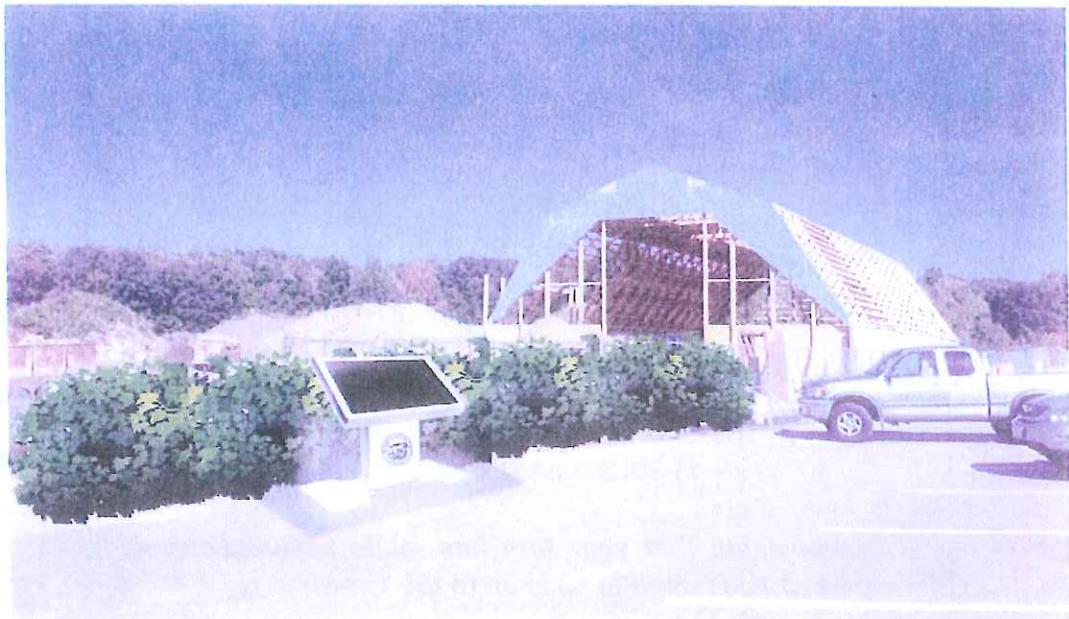
We have included two kiosks/displays in our proposal (please see example graphic below). We are open and willing to help Needham realize it's community education and outreach goals in whatever form that may take. Based on past experience, we believe the most powerful tool is a clear, thoughtful and comprehensive online monitoring system. Once the availability of this tool is known, its accessibility allows anyone on any home or mobile device to access it conveniently.

**b. How will these be used, maintained and/or demonstrated?**

We believe that hosting a public forum would be the most beneficial opportunity to introduce and demonstrate the kiosk/display user interface to community members. Additionally, the online monitoring system will be integrated into the school based curriculum that we will develop. This will allow students, teachers and the general public to have real time access to the project performance data.

Kiosks/displays will be LCD or LED screens and will show:

- A brief introduction of how electricity is generated and transmitted on site
- Real-time data (or near real-time) energy generation
- Daily, monthly, and lifetime performance output of the system(s)
- Current weather conditions
- Environmental benefits of the system
- Photos of the site including aerials



- c. If Kiosks are not included in your proposal, what is the pricing impact to your proposal to provide Kiosks for both indoor (Town or School building) and outdoor (at the RTS) use?**

N/A

**16. Maximum Power Point Tracking (MPPT)**

- a. How many panels per string?**

There are 19 panels per string.

- b. How many strings per inverter?**

There are 326 strings per inverter. The current system design includes two Power One 1.5 MW inverters (for the largest system).

- c. How many MPPT channels are available in each inverter?**

Each inverter has four MPPT channels, for eight channels total. There will be some slight variations in the array in tilt and orientation, but eight MPPT channels are sufficiently robust to handle these variations.

- d. Considering the need for MPPT and the large number of panels per inverter, provide a simplified panel interconnection diagram showing how inverter MPPT is optimized.**

The Project will have eight total MPPT channels. This capability is sufficient to address any panel or orientation issue.

- e. Should additional MPPT methods be employed such as power optimizer behind each panel? Why or why not would the use of a power optimizer per panel be cost effective in terms of harvesting additional energy?**

Power optimizers are unnecessary for the Needham Landfill Project - DC optimizers are not cost-effective in this environment. This site is sufficiently flat. All panels will be mounted at 25 degrees and 180 degrees azimuth. The 8 MPPT inverter tracks resolve all expected slope and mounting issues.

The Solstice racking system is expected to provide additional solar harvest upside to the Town based on historic data collected from existing Solstice installations over the past two years. Performance Ratios in the mid 90's (even approaching 100) have been achieved with the Solstice system as configured. The Solstice system will provide maximum production and performance.

**17. Pricing:**

**a. Brightfields acknowledged the obligation to pay the illustrative lease and PILOT payments annually, but did not include any cost adders in its price.**

**i. Are those costs embedding in your firm's pricing proposal or will you treat them as a pass-through?**

The lease and PILOT payments are included in our pricing and therefore were included as "adders" in the pricing to the Town.

**ii. If a pass-through, please update your submitted pricing proposal providing the impact of such costs on a \$/kWh basis.**

N/A

**b. The Town is considering an alternative Indexed pricing option, which provides a discount off of the then-current NStar net metering tariff rate.**

**i. Please discuss whether your firm is willing to offer such an Indexed price offer, and if so, provide the discount rate in a percentage and any floor price your firm would require.**

We are willing to work with the Town to price this option and determine its benefit to Needham and the Project.

**ii. Please discuss how your firm would treat the payment obligations of the illustrative PILOT and Lease amounts.**

N/A

**c. Please discuss your firm's proposal for the Termination and Removal/Restoration pricing provided. Specifically:**

**i. Does the "At Expiration" for the "Termination Fee" value mean the expected purchase price after year 20 if the Town does not require the system to be removed and the site restored? Please note that under the statute, the Town is currently limited to a 20-year term for the purchase of the power/net metering.**

No. The "At Expiration Termination Fee" was interpreted to mean the amount the Town would be required to pay the Buyer should they elect to terminate the contract after year 20.

We will agree to a value determined by an independent third party appraiser that will identify the fair market value of the assets at that time.

***ii. Does the "At Expiration" of the "Removal and Restoration" value indicate the cost for decommissioning? Is that cost included in your firm pricing or is it expected that the Town will be responsible to compensate your firm if the Town requires the system to be removed and the site restored?***

Yes. The "At Expiration Removal and Restoration" cost is the value up to what we would cover to decommission the system at the end of the PPA. The cost is anticipated to be covered through a bond.



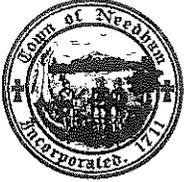
**Board of Selectmen  
TOWN OF NEEDHAM  
AGENDA FACT SHEET**

---

**MEETING DATE: 10/29/2013**

<b>Agenda Item</b>	Public Information Session – Warrant Review
<b>Presenter(s)</b>	Board of Selectmen – Public Information

<b>1.</b>	<b>BRIEF DESCRIPTION OF TOPIC TO BE DISCUSSED</b>																													
<p>Proponents of articles in the warrant for the November 4, 2013 Special Town Meeting will make brief comments and answer questions from the public about their articles. Articles will be reviewed in the following order:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Section</th> <th>Articles</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Financial</td> <td>3-5</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Rail Trail</td> <td>12-13</td> </tr> <tr> <td style="text-align: center;">3</td> <td>General Articles</td> <td>14-17</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Community Preservation</td> <td>18</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Capital</td> <td>19-22</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Town Reserve</td> <td>23</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Capital Facilities</td> <td>1-2</td> </tr> <tr> <td style="text-align: center;">8</td> <td>Solar</td> <td>6-11</td> </tr> </tbody> </table>					Section	Articles	1	Financial	3-5	2	Rail Trail	12-13	3	General Articles	14-17	4	Community Preservation	18	5	Capital	19-22	6	Town Reserve	23	7	Capital Facilities	1-2	8	Solar	6-11
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<b>2.</b>	<b>VOTE REQUIRED BY BOARD OF SELECTMEN</b>	<b>YES</b>	<b>NO</b>																											
<i>Discussion Only</i>																														
<b>3.</b>	<b>BACK UP INFORMATION ATTACHED</b>	<b>YES</b>	<b>NO</b>																											
<p>a. Notice of Warrant Information Session  b. Special Town Meeting Warrant provided under separate cover</p>																														



## TOWN OF NEEDHAM

TOWN HALL  
1471 Highland Avenue  
Needham, MA 02492-2669

Office of the  
BOARD OF SELECTMEN

TEL: (781) 455-7500  
FAX: (781) 449-4569  
TDD: (781) 455-7558

TO: Town Meeting Members  
Board and Committee Members

FROM: Board of Selectmen

DATE: October 4, 2013

RE: October 29<sup>th</sup> Warrant Information Session and  
November 4<sup>th</sup> (and possibly November 6<sup>th</sup>) Special Town Meeting

The Board of Selectmen invites Town Meeting Members and interested members of the public to attend a Warrant Information Session, to be held at James Hugh Powers Hall on **Tuesday, October 29, 2013** beginning at 7:00 PM.

The purpose of the meeting will be to review the Special Town Meeting agenda in advance of the Town Meeting scheduled for the following **Monday, November 4<sup>th</sup>**. Article Proponents and Board and Committee members will be present to provide information, and there will be opportunity for public questions and comment.

The Special Town Meeting warrant and additional information will be mailed to Town Meeting Members prior to the meeting on the 29<sup>th</sup>.

Due to the number of articles, and the complexity of and interest in the issues presented, the Selectmen anticipate that this Town Meeting may not conclude in one evening. For that reason, the Selectmen recommend that a second night of Town Meeting, if required, be held on **Wednesday, November 6, 2013**, and ask Town Meeting Members to hold both November 4<sup>th</sup> and November 6<sup>th</sup> available for that purpose if possible.

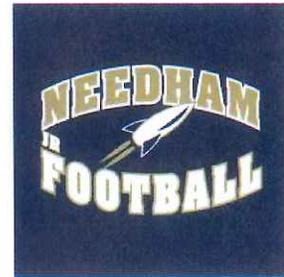
The Board of Selectmen encourages your attendance at the October 29<sup>th</sup> session and at Town Meeting. Thank you.

**ONE DAY SPECIAL LICENSE  
TOWN OF NEEDHAM BOARD OF SELECTMEN  
EVENT INFORMATION SHEET**  
(Please complete and attach event flyer or other information.)

Event Manager Name (Name that will appear on license)	Mike Despres
Event Manager Address	83 Morton St Needham
Event Manager Phone Number	781 690 6190
Organization Representing (if applicable)	Village Club
Is the organization (if applicable) you are representing non-profit? If so, please attach proof of non-profit status.	<input type="checkbox"/> Non-profit <input type="checkbox"/> For profit <input checked="" type="checkbox"/> Proof of non-profit status is attached Form of Proof: <u>On File</u>
Name of Event	Needham JR Football Fundraiser
Date of Event	Nov. 9th
License is for Sale of:	<input type="checkbox"/> Wines & Malt Beverages Only <input checked="" type="checkbox"/> All Alcoholic Beverages (for non-profit groups only)
Requested Time for Liquor License	FROM: <u>7 PM</u> TO: <u>11:30</u>
Are tickets being sold in advance for this event?	<input checked="" type="checkbox"/> YES \$ <u>20</u> /per ticket <input type="checkbox"/> NO
Is there an admission fee for this event?	<u>At Door</u> <input type="checkbox"/> YES \$ <u>25</u> /per ticket <input type="checkbox"/> NO
Are you using dues collected to purchase alcohol for this event?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
How many people are you expecting at this event?	<u>150</u>
Name & address of event location. Please attach proof of permission to use this facility.	Village Club Hall 83 Morton St
Who will be serving the alcohol to your guests?	One Certified Bartender
Bartenders and/or servers of alcohol, beer and/or wine must have completed in the past three years an appropriate Massachusetts alcoholic beverages server-training program. Please state below who will be serving alcohol, beer and/or wine and attach proof of their training (certificate).	Chris Williams, Certificate on file
Please use the space below to describe the manner in which alcohol will be served to your guests. (For example, will guests be served alcohol or will they need to purchase it from the bar?) Please attach floorplan (can be hand drawn) of the event facility with liquor delivery plan.	Alcohol will be served from a single location - see Attachment -
<input checked="" type="checkbox"/> I understand that the alcohol purchased for this event must be purchased from a licensed wholesaler/importer, manufacturer, farmer-winery, farmer-brewery or special permit holder and that I have received a current list of wholesalers. (A person holding a Section 14 license cannot purchase alcoholic beverages from a package store. (MGL Ch. 138, Sec 14, 23; 204 CMR 7.04))	
Event Manager Signature:	<u>Mike Despres</u> Date: <u>10/25/13</u>

[Create an event](#) [Find events](#)

[Email](#) [Share](#) [Tweet](#) [Questions? Contact the organizer](#)



## 2013 Needham Jr. Football & Cheer Dance Party

Needham Junior Football & Cheerleading  
 Saturday, November 9, 2013 from 7:00 PM to 11:00 PM (EST)  
 Needham, MA

### Ticket Information

TICKET TYPE	REMAINING	SALES END	PRICE	FEE	QUANTITY
<a href="#">Advance Tickets</a> <small>more info</small>	134 Tickets	Nov 9, 2013	\$20.00	\$2.09	1



[Order Now](#)

[Save This Event](#)

### Who's Going

Oops! We're having trouble connecting to Facebook. Please [try again](#).

Share 2013 Needham Jr. Football & Cheer Dance Party

[Email](#) [Share](#) [Tweet](#)

### When & Where

Needham Heights  
 KinderCare



Google

Morton St  
 Map data ©2013 Google

**The Village Club**  
 83 Morton St  
 Needham, MA 02494

Saturday, November 9, 2013 from 7:00 PM to 11:00 PM (EST)

[Add to my calendar](#)

### Event Details

People are still talking about last year's party

**So let's do it again!**

Get together for a great cause – The second annual Needham Junior Football & Cheer Dancy Party.

- DJ
- Finger foods and cash bar
- Raffle items
- Age 21+ (parents and their friends)

All proceeds of your tax deductible donation go to Needham Junior Football & Cheerleading helping us invest in our future.

Have questions about 2013 Needham Jr. Football & Cheer Dance Party?  
[Contact Needham Junior Football & Cheerleading](#)

### Organizer

**Needham Junior Football & Cheerleading**

[Contact the Organizer](#)

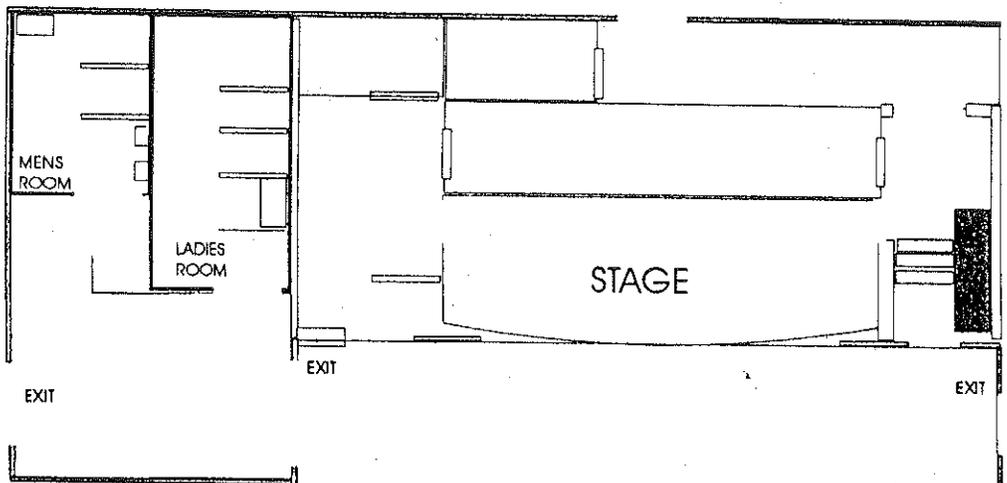
[View organizer profile](#)

- 1 upcoming event on Eventbrite
- 2 past events on Eventbrite

### Attendee List

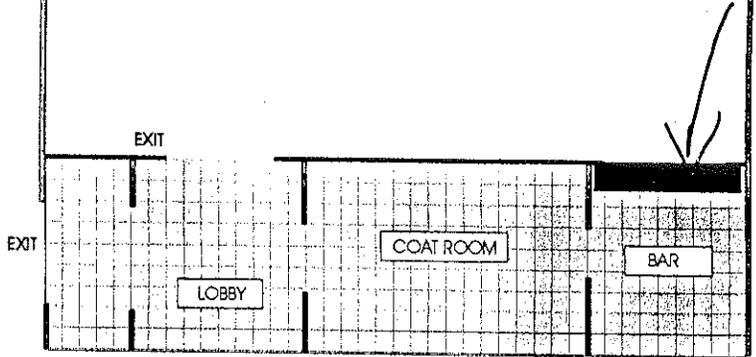
Sort by: [Date](#) | [First Name](#) | [Last Name](#)

- [\[Redacted Name\]](#)
- [\[Redacted Name\]](#)
- [\[Redacted Name\]](#)
- [\[Redacted Name\]](#)



**The Village Club**  
 HIGHLANDVILLE HALL  
 Needham, Ma

HIGHLANDVILLE  
 HALL  
 60' X 40'



ALL ALCAHOL SERVED HERE

Print Main Menu

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# Certificate of Completion

This Certificate of Completion of  
eTIPS On Premise 2.0  
For coursework completed on May 28, 2013  
provided by Health Communications, Inc.  
is hereby granted to:

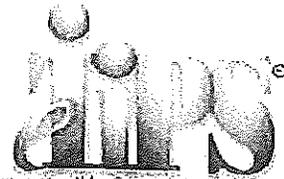
**Chris Williams**

Certification to be sent to:



HEALTH COMMUNICATIONS, INC.

This document is not proof of TIPS certification. It signifies only that you have completed the course. Valid certification documents will be forwarded to you.



**ONE DAY SPECIAL LICENSE  
TOWN OF NEEDHAM BOARD OF SELECTMEN  
EVENT INFORMATION SHEET**  
*(Please complete and attach event flyer or other information.)*

Event Manager Name (Name that will appear on license)	Michael Despres		
Event Manager Address	83 Morton St Needham 02494		
Event Manager Phone Number	781 690-6190		
Organization Representing (if applicable)	Village Club		
Is the organization (if applicable) you are representing non-profit? If so, please attach proof of non-profit status.	<input type="checkbox"/> Non-profit	<input type="checkbox"/> For profit	
	<input checked="" type="checkbox"/> Proof of non-profit status is attached Form of Proof: <u>501 on file</u>		
Name of Event	Mitchell School Fund Raiser		
Date of Event	Nov 8 <sup>th</sup> 2013		
License is for Sale of:			
<input type="checkbox"/> Wines & Malt Beverages Only			
<input checked="" type="checkbox"/> All Alcoholic Beverages (for non-profit groups only)			
Requested Time for Liquor License	FROM:	5 PM	TO: 11:30 PM
Are tickets being sold in advance for this event?	<input checked="" type="checkbox"/> YES	\$ 20. <sup>00</sup> /per ticket	<input type="checkbox"/> NO
Is there an admission fee for this event?	<input checked="" type="checkbox"/> YES	\$ 20. <sup>00</sup> /per ticket	<input type="checkbox"/> NO
Are you using dues collected to purchase alcohol for this event?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
How many people are you expecting at this event?	150		
Name & address of event location. Please attach proof of permission to use this facility.			
83 Morton St The Village Club			
Who will be serving the alcohol to your guests?			
One Bartender			
Bartenders and/or servers of alcohol, beer and/or wine must have completed in the past three years an appropriate Massachusetts alcoholic beverages server-training program. Please state below who will be serving alcohol, beer and/or wine and attach proof of their training (certificate).			
Chris Williams Tipps Certificate On File			
Please use the space below to describe the manner in which alcohol will be served to your guests. (For example, will guests be served alcohol or will they need to purchase it from the bar?) Please attach floorplan (can be hand drawn) of the event facility with liquor delivery plan.			
Alcohol will be served from a single bar/see attached floor plan			
<input checked="" type="checkbox"/> I understand that the alcohol purchased for this event must be purchased from a licensed wholesaler/importer, manufacturer, farmer-winery, farmer-brewery or special permit holder and that I have received a current list of wholesalers. (A person holding a Section 14 license cannot purchase alcoholic beverages from a package store. (MGL Ch. 138, Sec 14, 23; 204 CMR 7.04))			
Event Manager Signature:	<i>M Despres</i>		Date: 10/22/13

[Create an event](#) [Find events](#)

[Email](#) [Share](#) [Tweet](#) Questions? [Contact the organizer](#)

# Oktoberfest in November

The Mitchell School Social Committee  
Friday, November 8, 2013 from 8:00 PM to 11:30 PM (EST)  
Needham, MA

### Registration Information

REGISTRATION TYPE	SALES END	PRICE	FEE	QUANTITY
Oktoberfest Ticket (1 adult) <a href="#">more info</a>	Nov 8, 2013	\$20.00	\$0.00	1 <input type="text"/>



[Register](#)

[Save This Event](#)

### Who's Going

Oops! We're having trouble connecting to Facebook. Please [try again](#).

### Share Oktoberfest in November

[Email](#) [Share](#) [Tweet](#)

### When & Where



The Village Club  
83 Morton Street  
Needham, MA 02494

Friday, November 8, 2013 from 8:00 PM to 11:30 PM (EST)

[Add to my calendar](#)

### Organizer

The Mitchell School Social Committee

[Contact the Organizer](#)

[View organizer profile](#)



Mitchell Social Committee  
Celebrates Oktoberfest in NOVEMBER!  
We're having a Mitchell Party for Parents  
to spread some Cheer  
with German Fare, a DJ  
and Awesome Beer!!



Please join us  
Friday, November 8th  
8:00pm - 11:30pm  
Needham Village Club

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**Tickets \$20/person**

*\* ticket includes light food, fun music and entry for door prizes*

**So don't be a Weiner Schnitzel,  
grab your friends & yodel your way over!**

**{Lederhosen not required}**

Have questions about Oktoberfest in November? [Contact The Mitchell School Social Committee](#)

**Attendee List**

Sort by: [Date](#) | [First Name](#) | [Last Name](#)

Elissa Rosenfelt

Rachel Glazer

Kristen Rozman

Amanda Abdella

Melinda Shea

dara warn

Laura Hynes

Eliza Fortenbaugh

Janine McGuire

Frederica Lalonde

jodi and Keith Levine

Christine Wantman

Christy Bird

Michaela Pavlik

Kristen Young

Anne Grady

Sarah Mesnik

Stacey Cayer

Kellee Beck

Sandra Calmes

Jen and Chris Pachus

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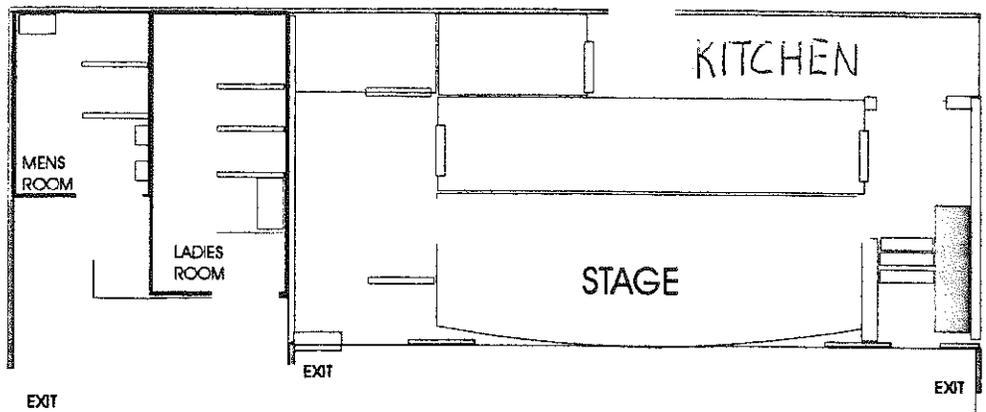
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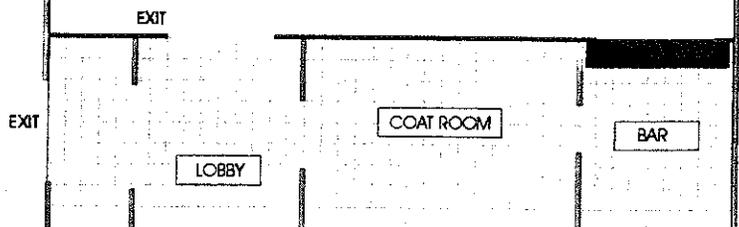
Sort by: [Date](#) | [First Name](#) | [Last Name](#)



**The Village Club**  
HIGHLANDVILLE HALL  
Needham, Ma

**HIGHLANDVILLE  
HALL**

**60' X 40'**  
**SEATING 185 max**  
**w/ dancing 155**



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# Certificate of Completion

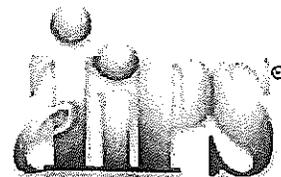
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**Chris Williams**

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