



Public Facilities Committee Report

City of Newton

In City Council

Wednesday, February 6, 2019

Present: Councilors Crossley (Chair), Leary, Norton, Kelley, Danberg, Laredo

Absent: Councilors Gentile, Lappin

City Staff Present: Chief Operating Officer Jonathan Yeo, Co-Director of Sustainability Bill Ferguson, Co-Director of Sustainability Ann Berwick, Commissioner of Public Works Jim McGonagle, Director of Utilities Ted Jerdee, Finance Director Jack Cowell

Referred to Public Facilities and Finance Committees

#67-19 Approve a \$500,000 for snow and ice removal

HER HONOR THE MAYOR requesting authorization to transfer the sum of five hundred thousand dollars (\$500,000) from the Budget Reserve – Snow and Ice Removal Account to the following accounts:

Rental - Vehicles (0140110-5273)	\$350,000
Regular Overtime (0140110-513001)	\$150,000

Action: **Public Facilities Approved as Amended 5-0 (Norton not Voting)**

Note: Department of Public Works Finance Director Jack Cowell presented the request for \$500,000 from budget reserve for the purpose of snow and ice removal. Mr. Cowell stated that the City has used \$2.3 million dollars of the \$2.5 million requested so far this year and noted that it is likely that the administration will amend the docket request as more snow events are expected. Chief Operations Officer Jonathan Yeo confirmed that the request should be amended to \$1 million dollars to prevent deficit spending. Committee members expressed no concerns relative to the request and voted unanimously in favor of a motion to approve as amended from Councilor Danberg.

Referred to Public Facilities and Finance Committees

#541-18 Amendments to the Stormwater Use Charge Ordinance

HER HONOR THE MAYOR requesting Chapter 29, Section 120 (a) **Stormwater Use Charge** of the City of Newton Revised Ordinance, 2017 be amended by deleting the current rate structure and replacing it with the following effective July 1, 2019:

Every owner of property in the city shall pay a charge for use of public main drains and stormwater facilities, which shall be based on the following annual rates. Such charge shall be billed quarterly:

1. 1-4 family dwellings \$100.00
2. All other properties: \$0.0425 per square foot of impervious surface area, except that if the square footage charge multiplied by the total impervious area of the parcel equals a sum less than \$150.00, then the annual fee shall be \$150.00.

Action: **Public Facilities Approved as Amended 5-0**

Note: Chief Operating Officer Jonathan Yeo presented the request to amend the Stormwater Use Charge Ordinance. The ordinance was previously approved by the Public Facilities Committee. Members of the public and Councilors raised concerns about limiting credits to a maximum number of 25% of the fee, for entities who invest in extensive stormwater management systems. The item was recommitted to Public Facilities to allow the administration an opportunity to evaluate whether increasing the abatement is possible. Mr. Yeo confirmed that the administration analyzed the options and determined that IF the City were to increase the abatement up to 50%, this would require an increase in cents per square foot from .0425 to .047 in order to maintain the needed revenue stream. He also noted that the City may waive the fee for public parks and cemeteries, or may exempt cemeteries exclusively, which is done in other parts of the country.

COO Yeo explained that there are 800 businesses who would see a decrease in fees under the original proposed rate changes. Currently, up to 25% credit is given to entities who manage 50% or more of stormwater on site. Increasing credit up to 50% will require some additional subsidy from a portion of the 800 businesses, who do not manage storm water on site. Director of Utilities Ted Jerdee noted that 29 properties have filed for an abatement since 2006, 5 of which have been non-residential properties and have qualified for a 25% credit. Mr. Jerdee stated that the increase in cents per square foot from .0425 to .047 is based on an estimate of crediting an average of 15% for the affected 250 properties with fee increases. He stated that it is expected that most entities will not be able to implement stormwater management systems immediately. He noted, in addition that incentivizing entities to enhance their stormwater management systems will result in increased credits to Newton, helping Newton meet the National Pollutant Discharge Elimination System (NPDES) permit. Mr. Yeo noted that within the next few years, it is expected that the City will need additional staff to investigate and monitor phosphorous reduction projects. He suggested that the City may be able to phase in additional incentives over the next few years.

Committee members deliberated whether the credit could be raised to 33% rather than 50%. Mr. Jerdee explained that the difference in maximum credit will not affect the cents per square foot, as the calculation for cents per square foot is based on an estimated average credit of 15% in the first year. Committee members agreed that the City should be encouraging on site stormwater management and that maximum credits should therefore be set at 50% to encourage best practices.

Regarding exemptions, committee members expressed some concern about exempting parks because it is not clear how parks can be defined but noted that the cemetery manages a majority of its stormwater on site. Committee members agreed that cemeteries should be exempted, but parks should continue to pay the until the City clarifies how to qualify a park exemption. With that, Councilor Danberg motioned to approve the stormwater use charge ordinance as amended; to allow a credit up to 50%, to increase the stormwater use charge from .0425/sq. ft. of impervious surface area to .047/sq. ft., and to exempt cemeteries. Committee members voted unanimously in favor of approval. The Committee requested that the administration provide a memo relative to the changes prior to the full Council Meeting.

#23-19 Authorization to enter into lease negotiations for Solar Phase III project sites

HER HONOR THE MAYOR requesting authorization to enter into negotiations for the potential lease on 18 municipal and school properties for purposes of third-party construction, ownership, and operation of on-site renewable solar energy generation from which the City will purchase electric output and/or net metering credits.

Locations:

Brown Middle School Parking Lot	Oak Hill Middle School Parking Lot
Memorial Spaulding Elementary School Parking Lot	Education Center Parking Lot
Bigelow Middle School Parking Lot	Mason Rice Elementary School Parking Lot
Newton North High School Parking Lots	Pleasant Street Parking Lot
Newton Free Library Parking Lot	Auburndale Cove Parking Lot
Fire Station #3 and Headquarters Roof	Zervas Elementary School Roof
FA Day Middle School Roof	Angier Elementary School Gym Roof
Williams Elementary School Roof	Cabot Elementary School Gym Roof
Carr School Roof	Education Center Roof

Note: On January 16, 2019, Public Facilities presided over a Committee of the Whole to hold a public hearing for the Phase III solar projects. The administration withdrew the request for Bigelow Middle School and the Parks and Recreation Commission denied the solar canopies at the Auburndale Cove. The administration provided answers to Councilor's questions at the January 23, 2019 and February 6, 2019 Public Facilities Committee meetings. The responses to Councilor's questions raised to all solar site are attached to this report. President Laredo confirmed that it is not his intent to refer the docket item to the Finance Committee but noted that Councilors may request a condition relative to a review of the leases. It was noted that the administration is hoping to move forward with the school sites during summer. Public Buildings Project Manager Bill Ferguson confirmed that the draft lease has been through several iterations and will be ready for review prior to the Council meeting on February 19, 2019.

With regard to the physical solar structures, COO Jonathan Yeo noted that it is expected that the posts will be painted primarily white but can be changed to whatever color is most appropriate for the setting. Committee members questioned whether the lease will require maintenance of the physical structure as

well as the system. It was noted that the system is defined as including the physical structure. Mr. Yeo confirmed that the lease can explicitly include maintenance of the physical structure.

Committee members reviewed each site rendering as shown on the presentation and discussed possible impacts at each site. Committee members agreed that a condition should be included for all sites requiring that all solar revenue is given to the City unless the Council Order is amended by the Council. Committee members voted on and drafted site-specific conditions as shown below.

Fire Station #3 and Headquarters Roof, FA Day Middle School Roof, Williams Elementary School Roof, Carr School Roof, Zervas Elementary School Roof, Angier Elementary School Gym Roof, Cabot Elementary School Gym Roof, Education Center Roof.

Committee members expressed no concerns relative to the roof top installations. Councilor Danberg moved approval of the roof sites which carried unanimously (4-0, Kelley, Norton not Voting).

Oak Hill Middle School Parking Lot

After a review of the assessing lines, it was determined that the canopy is entirely on school property. There may be some grass that is shaded on the school property. Mr. Yeo confirmed that the City will plant different grass seed, if necessary.

Condition

Existing plantings shall be maintained or replaced with shade tolerant species if necessary.

With that, Councilor Leary Leary moved approval which carried unanimously.

Education Center Parking Lot

Committee members noted that the Ed Center Canopy does not impede view or shade on any plantings. Councilor Leary moved approval of the solar at the Ed Center which carried unanimously.

Memorial Spaulding Elementary School Parking Lot

Condition

In consultation with the Deputy Commissioner of Parks and Recreation, plantings shall be added to the berm and grassy areas at the site.

Councilor Laredo moved approval of the solar canopy at Memorial Spaulding. Committee members voted unanimously in favor of support.

Pleasant Street Parking Lot

Mr. Yeo confirmed that the administration will explore the option of locating additional trees/plantings at the Pleasant Street lot on the Pleasant Street side.

Condition

The administration will explore the option of locating additional trees/plantings at the Pleasant Street lot on the Pleasant Street side.

Councilor Danberg motioned to approve with carried unanimously.

Mason Rice Elementary School Parking Lot

Mr. Welch has identified a number of locations to plant 29 trees. Mr. Yeo confirmed that the solar canopy is entirely on school property and will not shadow on other properties.

Condition

Twenty-nine new trees shall be planted at the site located in accordance with recommendations from the Deputy Director of Parks and Recreation.

With that, councilor Danberg moved approval which carried unanimously.

Newton North Parking Lot – Lowell Avenue

Mr. Ferguson explained that the solar canopy at Newton North – Lowell Avenue is a wider style canopy because parking is on either side of the parking lot, not down the middle. Committee members questioned how the water/snow runoff will impact visitors underneath the canopy. It was confirmed that the water will drip between panels as well as off the side of the panels. Mr. Ferguson noted that no gutter systems are being installed at the solar sites as they can be cost prohibitive. This canopy is 12'-15' high.

Existing plantings along Lowell Avenue shall be maintained or replaced with shade tolerant species if necessary.

Condition

Existing plantings along Lowell Avenue shall be maintained or replaced with shade tolerant species if necessary.

*Committee members requested drawings from administration articulating the shade from the canopy.

Councilor Norton moved approval which carried 3-0-1, Laredo abstaining, Kelley, Leary not Voting.

Newton North Parking Lot – Walnut Street

Councilor Norton moved approval which carried unanimously,

Brown Middle School Lot (A – at front of School)

A Committee member expressed concern relative to the installation at the school entrance and noted that the canopy has an overhang onto the grass. It was noted that the School Committee has not approved a canopy at this location. Mr. Yeo confirmed that he will seek School Committee approval of this location and provide a plan specifically identifying the location of poles for the canopy and any shadow on the grass.

Conditions

Trees shall be replanted in front of the school.

Plantings along Walnut Street shall be maintained or replaced with shade tolerant species if necessary.

*Committee members requested a plan identifying the location of poles for the canopy and any shadow on the grass.

Councilor Norton moved approval which carried 3-0-1, Laredo abstaining, Kelley, Leary, not Voting.

Brown Middle School Parking Lot (B)

Condition

Screening (evergreen underplanting) shall be planted at the site.

Councilor Danberg moved approval which carried 3-0-1 (Laredo abstaining, Kelley, Leary not Voting)

Newton Free Library

Mr. Yeo emphasized that there is a shortage of parking between City Hall and the Library, particularly during weekdays. He noted that the administration has evaluated options for City Hall parking and stated that expansion of parking at the library has been a top priority for many years. He noted that the City is working from different angles to maximize space (i.e. relocate staff to Crafts Street, implement Lime Bikes), parking remains an issue for staff and visitors to City Hall and the library. He explained that in tandem with the investments to the library planned over the next few years, it is hoped that parking can be expanded to match the increased activation at the site. Mr. Yeo suggested that it may be beneficial to simultaneously incorporate the expansion of the parking lot with the installation of the solar canopies and a stormwater management system. He confirmed that the Library Board of Trustees has expressed interest in a solar project, subject to the conditions shown attached.

Committee members acknowledged the parking constraints at the City Hall/Library campus as well as the flooding at the library and the desire to locate solar at the site. Some Committee members noted that parking farther away can be challenging for elderly visitors and visitors with young children but acknowledged that visitors can accommodate walking a short distance. A Committee member noted that expansion of the parking lot is inconsistent with the historical concept for the library and requested that the administration identify whether there is a vast increase in the number of users at the site, whether there are more employees at City Hall and what TDM plan is the City implementing?

In response to questions from Committee members, Mr. Yeo confirmed that trees will be planted throughout the site and within the immediate vicinity. A Committee member questioned whether the administration will move forward with the solar canopy if the expansion of the parking lot is not approved during a subsequent Council review. Mr. Yeo noted that he is unsure if the administration is willing to move forward without the parking lot expansion and upgrade but confirmed that he can provide a response prior to the Council meeting.

Conditions

Trees shall be planted in accordance with the recommendation of the Deputy Director of Parks & Recreation.

Detailed plans shall be provided and approved by the Board of Trustees as resolved on 12/19/2018.

Approval is in concert with repair and expansion of the lot as well as integration of the stormwater management system.

Councilor Norton moved approval which carried 5-1, Laredo opposed.

#637-18 Appointment of Steven Ferrey to the Solid Waste Commission

HER HONOR THE MAYOR appointing STEVEN FERREY, 25 Huntington Road, Newton, as a member of the SOLID WASTE COMMISSION for a term to expire January 15, 2022. (60 days 02/15/19)

Action: **Public Facilities Approved**

Note: Councilor Leary noted that Mr. Ferrey has been participating on the Solid Waste Commission for many years. Committee members expressed no concerns relative to the appointment and voted unanimously in favor of a motion to approve from Councilor Leary.

The Committee adjourned at 10:25 pm.

Respectfully submitted,

Deborah Crossley



Newton City Council

Public Facilities Partial Report

Committee of the Whole

Wednesday, January 16, 2019

Public Facilities Committee members present: Councilors Crossley (Chair), Leary, Norton, Kelley, Gentile, Danberg, Laredo and Lappin

Also present: Councilors Cote, Brousal-Glaser, Downs, Grossman, Auchincloss, Noel, Greenberg, Schwartz, and Krintzman

City staff present: Jonathan Yeo (Chief Operating Officer) and Bill Ferguson (Co-Director of Sustainability)

Note: This portion of the report covers the Councilors questions which were raised during the meeting.

#23-19

Authorization to enter into lease negotiations for Solar Phase III project sites

HER HONOR THE MAYOR requesting authorization to enter into negotiations for the potential lease on 18 municipal and school properties for purposes of third-party construction, ownership, and operation of on-site renewable solar energy generation from which the City will purchase electric output and/or net metering credits.

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Carr School Roof	Education Center Roof

Action: Public Facilities Held 8-0; Public Hearing Closed 8-0

Note: The following are the questions raised by the City Councilors during the Committee of the Whole meeting with the Public Facilities Committee presiding.

Questions

1. Why wasn't solar added to the newly constructed buildings such as Fire Station 3, Fire Headquarters, Zervas Elementary School, and Angier Elementary School?

The plan was always to construct these buildings solar ready and then use the Power Purchase Agreement ("PPA") approach to install the panels. By using this approach there is no cost to the City for the solar installation and the solar companies are responsible for maintenance of the solar systems and not the City.

The City is not very well equipped to maintain these systems and it is likely that they would lose performance over time. These systems will be maintained at peak performance by the solar companies for the 20-year life of the contract.

By solar ready we mean that the roof will support solar and electrical conduit is run from the roof to the electrical room.

2. What are the chances that the State offered solar incentives change in the upcoming years and how will that effect the solar contracts between the City and the solar companies?

Under the SMART program, once the project qualifies under an incentive block the incentive stays fixed for 20 years.

We also have a provision in our PPA that requires the City and the solar company to renegotiate the contract if either party is materially affected by a change in law. However, the SMART program is structured in such a way that once a project is accepted into a block it will maintain the incentive of that block for 20 years.

3. When the City is accepted into an incentive block by the State, can the State alter the amount of the incentive over the 20-year contract?

See #2 above.

4. If roof replacement or repairs are required on a rooftop with solar panels, is there a penalty to the City for partial or full removal of the solar panels on the roof?

Below is an excerpt from our PPA that addresses this question:

"Customer agrees to and shall pay....Provider an amount with respect to such work equal to Provider's actual and documented removal, storage, and replacement costs in the event that it is required to remove and reinstall its Facility Assets at a Facility to enable Allowed Disruption Time."

The PPA provides 8 days per facility per calendar year of allowed disruption time to enable roof work. The City is allowed to bank up to 30 days per facility per calendar year if it has not used annual allowed disruption time. This provides the City plenty of time to replace sections of roofing materials if needed.

5. If a solar company damages a roof, who is responsible for the cost of repair?

The PPA requires the solar companies to pay for the repairs.

6. Why is the City using the credit model through a Power Purchase Agreement instead of installing their own solar panels to power buildings?

There are four primary reasons for this:

- a) The projects are paid for by the solar companies. The City doesn't have to come up with the funding to build them. Phase 2 had a capital cost of \$10.5 million financed by Ameresco.
 - b) The solar company bears the risk of non-performance of the systems. The company guarantees a minimum level of performance of 80 to 85% over the 20- year contract.
 - c) We don't have to operate and maintain the panels, which we are not well-equipped to do ourselves and the performance of these panels would therefore likely decline. Under the PPA the solar companies will maintain the panels at peak performance.
 - d) We are not eligible for the federal tax incentives that the solar companies qualify for, which includes a 30% federal tax credit.
7. Should the City be charging the solar companies personal property tax for the solar locations even if the City is ultimately paying the tax?

The following points address this issue:

- a) Current state tax law and regulations have been interpreted by DOR to exempt solar projects on private property but tax privately owned projects on municipal property. This does not make sense and there has been a lot of interest in correcting this incongruity but with no results yet. Currently, an effort is underway through Senator Cyr's office to amend state law to correct this problem. Senator Cyr represents the Cape and the Islands, and his constituents are working with his office on this issue. Passing this amendment would be the best solution to this problem. In the interim, we have been using our current contract approach since 2012 without issue. Under our current PPAs the owners of solar panels on city property have a clause in their contracts with the City that if taxes are charged, the City will pay the taxes or have the electric use payment increased to offset the tax amount. The assessors have not been taxing the equipment for that reason since the net amount to the City is the same. It doesn't make sense for the City to tax itself.

- b) These solar projects were intended to be energy projects not tax revenue projects, so a decision was made to structure them as such and allocate the savings directly to energy budgets while this incongruity in state law is being addressed legislatively. As such, under Phase 2 and Phase 3 the energy savings benefit goes directly to the building and department that is the site of the energy project.
- c) The decision to structure the contract this way was made after a review of these issues by the Mayor's Office following a 2015 meeting involving the tax administrator, the law department, the CFO and the Mayor's Office.
- d) The Phase 2 and Phase 3 RFPs were issued on this basis and the proposals by the solar companies were made on this basis.
- e) We don't know what the effect on the PPA pricing would be if we changed our approach regarding property taxes and how it would impact each account and department that was planning on these savings. We do know that the PPA price would increase, which means the departments would pay more and save less. Department budgets would have to be adjusted accordingly, which means an increase in their budget. If this was done for Phase 3 it is unclear what would then happen to the Phase 1 and 2 projects.
- f) In view of these points we are not aware of any compelling reason to change the way we structure our contracts. The net impact on City revenue is the same. There would be a considerable amount of work and disruption involved in changing this approach only to end up with the same net result on City finances. If this is a concern our efforts may be best spent on supporting Senator Cyr's efforts to amend the law.

8. Contracts over five years usually require Council approval – Why are solar panel contracts exempt?

The requirement for City Council approval for any contract with a term over 3 years, and up to 5 years only applies to contracts for goods/services subject to MGL c. 30B. Solar panel contracts are exempt from MGL c. 30B.

9. What happens if a solar company the City has contracted with goes bankrupt? What does that mean for the City in terms of the contract and the installed equipment?

The two companies involved in the City's contracts are both large and well-financed. In fact, that is one of the reasons why both were selected. In any event, there is plenty of experience (although, thankfully, not in this City) to indicate that there would be willing buyers for these projects if these companies were to go bankrupt.

10. What protections does the City have in the contract?

A solar PPA is designed to offer numerous protections for the City. Some of these include:

Section 6.05 of the draft PPA has a \$200,000 decommissioning assurance to cover the costs of removing the systems.

The Section 4.07 Performance Bond provision demonstrates to the City that the construction crews have insured and guaranteed performance of the project to the developers.

The Section 3.05 Change in Law provision gives the parties 120 days to renegotiate the agreement if a change in law results in their not being able to perform their obligations or not achieve the economic benefits contemplated under the agreement.

The Section 2.02 Guaranteed Annual Output provision guarantees that the projects will perform as expected and that the City is entitled to an Annual Shortfall Payment if the systems are not performing as they should be.

11. What does behind the meter mean?

Behind the meter (BTM) means that the electricity produced by the solar project is used by the City building that is associated with that site. It could be a roof mounted solar system or a canopy system. In our case 15 of the 17 sites are designated as BTM.

Front of the Meter (FTM) means that no electricity is used by a facility. It is all supplied to the electricity grid.

Under the SMART program, the value of BTM savings is slightly higher than the value of FTM savings.

12. What are the energy generation impacts if trees are trimmed versus not trimming the trees? Is it minimal?

The Ameresco sites do not involve any tree trimming. For the Macquarie sites that involve tree trimming, the energy generation impacts would be minimal.

13. Could you provide clarity from the Tree Warden on what damage tree trimming does and how trimming will be approached.

Tree pruning will be done according to tree industry standards (ANSI A300 pruning standards). Work will be executed by or directly under the supervision of a Massachusetts Certified Arborist. All pruning cuts will be done in a manner that insures proper callus growth (“healing”). Tree pruning will follow standard crown raising and crown reduction techniques.

No more than 25% of the live canopy of any of the trees will be removed at any one time to insure minimal long-term health impacts on any tree pruned.

14. How did the City determine the number of replacement trees for each removed tree? Is it caliper inches of the removed tree?

The City is applying the same requirements and procedures on these projects as is required of private development through our tree ordinances and regulations. Our current regulations require that in most cases any tree that is eight inches in diameter or larger be replaced on a diameter inch for diameter inch basis. We are actually going beyond this requirement for this project and are replacing trees that are under eight inches on a diameter inch for diameter inch basis. The number of replacement trees is based on insuring, at a minimum, that all diameter inches are replaced.

15. Could the Tree Warden provide the caliper inches of the trees to be removed and the caliper inches of the replacement tree?

The diameter inches of the trees to be removed total approximately 210 inches. The total diameter inches of the replacement trees will be at least 210 inches.

[And note the following from Marc Welch: In the answers I provided I tried to stick with diameter because it is the term I use and the term that best describes what we are measuring. I recommend that "diameter" be used as much as possible in place of caliper. The standard measure of a tree's size is its trunk diameter. Any time you are trying to determine the trunk size of a tree growing anywhere (other than in a tree nursery) you measure its diameter. The diameter measurement is taken 4.5' above existing grade. This is industry standard and what is called for in the tree ordinance. The only time the term caliper is used is when purchasing plant material from a nursery. In a nursery setting standard plant material sizes are referred to in caliper (inches or centimeters). Nursery trees are measured at six inches above grade in the nursery field. The caliper measurement is the tree trunk's diameter at the measuring point (six inches above grade).]

16. Would the Administration provide a summary table of what changes in terms of savings if no trees are removed or trimmed?

For the Ameresco sites, no trees on the *outside* of the installation are planned for removal or trimming, and therefore there would be no changes in terms of energy savings. For the Macquarie sites see the list below:

- **Williams School Rooftop:** Minimal loss of production if trees are not trimmed. Therefore the City can avoid trimming here.
- **Angier School Rooftop:** Minimal loss of production if trees are not trimmed. Therefore the City can avoid trimming the large tree at this site.

- **Pleasant Street Parking Lot Canopy:** The removal of the two trees at this site is necessary for this solar canopy to be feasible.
- **Auburndale Cove Parking Lot Canopies:** There is one large tree that is slated to be removed to install one row of panels on the last row of parking spots. If this tree is not removed this row of panels is not feasible. This would reduce the total site electricity production from 360 kW to 273 kW, a 24% reduction.

Ameresco Tree Removal

- **Library Parking Lot Canopies:** If the last row of panels is removed from the project to save the one larger tree, there would be a substantial reduction in electrical production and resultant offsets to carbon emissions from existing fossil fuel sources. This is not recommended, especially since the City will be able to plant so many new trees in the area.

17. Trees that are relocated do not always survive. Will the City be responsible for replacing relocated trees if they die?

The City is including language in its PPA with the solar companies requiring them to replace any trees that were relocated or planted if they die within two years. Any trees that are moved that do not survive will be replaced based on a diameter inch for diameter inch basis. The City will be responsible for insuring survivability and replacement as needed.

18. When you calculate the carbon sequestration of the individual trees to be removed, is it the same as the replacement trees?

The following carbon reduction data below is based on a national tree calculator developed for the USDA Forest Service. These numbers are approximations and will vary greatly based on tree health, location, and species.

Annually, the trees currently proposed for removal reduce atmospheric carbon by approximately 8,000 pounds. If not removed these trees will reduce atmospheric carbon by about 275,000 pounds over the next twenty-five years.

The proposed replacement trees will reduce atmospheric carbon by about 1,680 pounds in the first year. Over the next twenty-five years the 140 replacement trees will have reduced atmospheric carbon by approximately 290,000 pounds.

The net loss in carbon sequestration due to the tree removals is 6320 pounds of carbon dioxide or 3.2 tons a year. In comparison the electricity generated by the solar canopies in total avoids the emission of 2,192 tons of carbon dioxide a year. If the rooftop units are separated out, the canopies alone avoid the emission of 1,620 tons of carbon dioxide a year, which is 506 times the amount lost by the few tree removals.

19. Why is the City replacing trees based on caliper inch?

The City is replacing the trees on a diameter inch basis because we are following our tree ordinance, regulations, and guidelines. See #15 for clarification of diameter inch vs. caliper inch.

20. Why do the two trees at the entrance of the Pleasant Street parking lot need to be removed? What is the marginal benefit of those removals?

The tree removals at that site have been reduced from 4 to 2. Without those trees removed, the project at that site would not be feasible.

21. What if solar panel technology changes dramatically during the length of the contract in terms of size and aesthetics? Will the contractor switch out the panels or is the City married to the originally installed panels?

There is no absolute guarantee that a more aesthetically pleasing or vastly superior module won't be available for 20 years. The lease works for the City for 20 years, and in order to work for the developer must be a 20-year deal. That said, if the technology, efficiency, and performance of the system were to improve dramatically, then the City could "buy out" the remaining term of the agreement, and seek to have new equipment installed. However, this is unlikely to occur, as historic efficiency gains in solar PV have been continuous but not dramatic so as to make currently installed systems "un-economic" to operate as-is. Solar is not like a VCR or an old cell phone where the value of the output of the device become degraded over time. A solar PV system will still fundamentally produce kWhs.

22. Do panels affect emergency response if there is a fire at a location? Can fire equipment get under solar canopies?

We have reviewed the canopy heights of every location with the Fire Department. The canopy heights where fire apparatus might be needed are set at a minimum of 14 feet (the height of fire station doors). This height was determined through discussions with the Fire Department and the solar contractors and the co-Director of Sustainability. The Fire Department was involved in the design of the projects, as was the Departments of Public Works and Parks & Recreation, which also have larger vehicles. The Fire Department must review and stamp the plans for the solar projects before a permit can be issued by ISD. We have already met with the Fire Department twice to review the plans for Phase 3.

The Fire Department is trained to fight fires involving solar installations. The solar companies are required to provide training to the fire fighters. Ameresco provided training for the Phase 2 projects.

23. What is the height of the solar canopies?

This will vary by site. They will be 9'6" minimums at some locations and 14-foot minimums at other locations. At the 9'6" minimum sites the installation will slope up to 16 feet. At the 14-foot minimum locations the installations will slope up to about 20 feet. The lower canopies will be at Brown Middle School parking lot, Pleasant Street parking lot, the Education Center and the Memorial Spaulding parking lot. The Newton North – Lowell Ave parking lot will be in the middle from 12' up to 18' max.

24. Understand the creation, removal, and disposal of solar panels have a negative environmental impact and that the tradeoff over time, though not perfect, is far better than the use of fossil fuels. Could the Council get some data on that?

The type of solar panels to be used for the project are not hazardous. They are crystalline silicon PV cells. Solar cells used to have lead but no longer do. MA DEP considers panels of this type to be so safe that it allows them to be managed as solid waste instead of hazardous waste, and at this time they can technically be disposed of in landfills. Nonetheless, we are discussing with the companies including a recycling provision in the contracts.

Also, solar PV modules are contained in a solid matrix, insoluble and non-volatile. Therefore, releases to the ground from leaching or volatilizing to the air during normal use or breakage is not an issue.

This is a good document on these and related issues:

https://www.mass.gov/files/documents/2017/10/16/solar-pv-guide_0.pdf

It is difficult to make a direct comparison between the negative impacts of solar panels and of fossil fuels. Fossil fuels are more harmful to the environment by many orders of magnitude. For example, coal generation of electricity results in emissions of particulates, which have serious health impacts. The sulfur in coal also causes acid rain. Natural gas generation involves fracking, with serious impacts on groundwater. And of course, generating electricity with fossil fuels is a major cause of climate change.

- 25.** The solar canopies at some locations are shading greenery. Will there be any impact to the greenery due to the shading?

There may not be any impact to the greenery because there will be times during the day when the areas in question will not be shaded. However, greenery that is currently growing in full sun will likely not do well if it is in shade most of the day. If there is an impact, different types of grass can be planted.

- 26.** If possible, could the Administration share other 20-year leases that have concluded or are near the end of their term that are similar to these leases?

We are not aware of 20-year leases that have concluded or are near the end of their term (the Green Communities Act was first adopted in 2008). Attached is the City's Phase I lease with Ameresco, executed in 2012.

- 27.** The canopy at Oak Hill Middle School is extending onto the grass field. Will that area always be shaded? Why is the post for the canopy going into the grass field? What is the rationale behind that placement?

See answer to #25. Also, the reason for the redesign to move a canopy, resulting in some shading of greenery, is to avoid removing a large tree. The end support posts for the new canopy will not actually be on the grass field, they will be up a small hill next (6" away) to a walkway. There will be no impacts to recreational activities, in fact there will be a covered shelter to for spectators to view games from instead of their cars.

- 28.** What is the cost of the expansion of the library parking lot? Is the City paying the full cost?

Parking lot projects generally cost in the \$350k to \$600k range depending on size and complexities. It is expected that the Library parking lot work will fall in this range. As with other ongoing Library capital projects (e.g., 30-year old flooring material replacements, Children's Room expansion), the City will pay through the capital budget.

- 29.** Does the City prioritize municipal parking lot improvements?

Yes, the City does prioritize municipal parking lot improvements as part of the Complete Streets project— Rehabilitation of City-Owned Parking Lots project (Priority #20 in FY2020-2024 CIP). Prioritization is based on both conditions analysis as well as tie-ins to other City projects. The Library parking lot is not in good condition and needs immediate expansion for the many facility users.

30. If the City expands the library parking lot, will it meet the zoning requirements for private parking lot expansions in terms of required improvements like storm water mitigation and landscape improvements?

While the City is exempt from meeting zoning requirements for projects on its own property, it will refer to the dimensional, construction and landscaping standard contained in the Zoning Ordinances as well as guidelines set by the Urban Land Institute and National Parking Association. The early draft lot layouts contained in the slides for Solar Phase 3 were developed by DPW's Engineering team and come very close to the Zoning Ordinance requirements (e.g., parking stall depth requirement of 19' is met on most but some are 18' on sides) and do meet the guidelines of the two professional organizations. A requirement for internal lot tree plantings would not be met, although shrub plantings in 6-7 green islands can be accommodated. There are 133 other trees, many quite mature, left on the Library's grounds. If the project is able to move forward, these lot improvement specifications will continue to be refined with reviews by the Library's director, DPW, Planning, and Environmental staff. The Council will be given updates.

31. Do the Auburndale Cove solar canopies require Parks and Recreation Commission approval?

Yes.

32. Are there conditions associated with the original permit to build the Library?

The only "permit" that happens when a city building is built is site plan approval pursuant to sec. 5-58. That's what happened here. The conditions in any sec. 5-58 site plan approval control the original construction, but don't survive as a controlling permit for the future life of that city building. Sec. 5-58 may be re-triggered if there is a future modification, but none of the solar canopies, or solar installations to date have triggered this requirement, and one at the library won't either.

33. Could you provide views of the solar installations from abutter properties?

Ameresco/Macquarie

In order to provide views from locations the solar firms need photographic images like those on Google Maps street view that have been provided. They do not have photos from neighbor's back yards at this point. Ameresco has provided a few additional visuals for the Newton North parking lot canopies, which are attached.

Regarding the Brown Middle School parking lot site, the City has committed to planting additional evergreen trees along the property line, which is already heavily wooded, to further reduce a perceived visual impairment of solar panels vs. cars and asphalt.

34. Provide the selection committee's interview rankings for the solar companies.

Attached is the September 20, 2018 memo from Chief Procurement Officer Nick Read regarding the RFP responses and rankings, as well as the detailed Comparative Evaluation Criteria sheets for Macquarie by the three reviewers (Ann Berwick, Bill Ferguson, Alan Mandl) and the City's outside expert consultant, Cadmus Group. Macquarie and Ameresco were tied with one other firm for the highest composite ratings and were chosen to proceed. After strong reference checks, both were chosen to split up the sites. Macquarie's technical proposal rankings were lower than Ameresco since they did not have Massachusetts experience (although their partner, HESP Solar of NY, did have considerable experience in other states). This issue did not disqualify Macquarie from consideration and Project Manager Bill Ferguson has found that both Ameresco and the Macquarie/HESP team have been very professional, very responsive and show a lot of expertise. He has been very satisfied with the performance of both companies.



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Solar Phase 3 Project
Update and Response to Additional Questions
February 1, 2019

Project Update: Since the last Public Facilities Committee meeting on January 23rd and the response to 34 questions presented at that meeting there are a few project updates:

- The Auburndale Cove solar canopy project was not supported by the Parks & Rec Commission and so will be pulled from consideration.
- On the issue of solar canopy aesthetics, we have discussed possible color options with the solar firms. There are several options (see attached) but it seems that white might be the best approach. It is an extremely durable paint and polyurethane finish, and will not give off a steel-colored “industrial” look. Also, for the Library Parking Lot canopies we researched the concepts developed several years ago and found the White canopies with brick bases to match the White paint and brick face of the building. Images of that are attached, although the new canopy layout is not exactly as depicted in these images.
- Canopies are 74 % of solar power generation for the Phase 3 Solar Project at nearly 3 million kWh annually. The canopies are the real backbone of the project’s renewable power generation framework, and thus are critical for the City to move forward implementing the Climate Action Plan.
- An update on the City Hall – Library complex parking discussion (see below) we are moving this month 7 staff from Engineering to the Crafts Street complex. This will remove both 7 City vehicles as well as 7 personal cars from the crowded War Memorial Circle – Homer Street – City Hall Drive area.

Responses to Questions

1. Can you ask Bill Ferguson to explain why they decided not to use a third applicant whose scores were nearly identical to the other two applicants that were chosen?

See Mr. Ferguson’s email explaining the decision which is attached to the end of Nick Read’s summary memo on the selection process (attached).

2. My question is just about the downspouts. I understand the Library parking lot will have downspouts directed underground. What will happen at the other parking lots? Is there a way that water from the panels is directed off the pavement so that icing does not occur in the parking / walking areas?

The Library solar canopy runoff will fall on the parking lot just as normal rainfall does. All our parking lots are designed to direct runoff to prevent ponding. Nothing changes with respect to rainfall on canopies, it just lands a few feet away from where it previously did. The canopies are designed to allow continued snow plowing and de-icing. The parking lot will be redesigned and paved which will

get rid of the persistent potholes and failing pavement that currently exists and creates spots for water/ice collection.

3. How is City Hall planning on providing more parking for visitors to City Hall, and communicating these spaces and enforcing their use such that said visitors do not park in the Library parking lot?

See answer to #4 below.

4. Has the administration or Library staff considered a Transportation Management Plan to address the fact that spots in the current library parking lot are being taken by employees of the library and are therefore not available to visitors to the library?

Jonathan Yeo's email of 1/29 provides this response. It is duplicated below.

Thank you for the comment Councilor Brousal-Glaser,

Parking is extremely challenging around the City Hall-Library complex during the work days, and at the Library alone in the evenings and on weekends. While we do plan to look at additional management options for City Hall employee parking, it will not come close to solving the extremely frequent full lot problem at the Library. Attached (below) is a photo of the Library lot last weekend where it was completely full and cars traveled in, didn't find spaces, and left. This has been happening for years. Expansion of the lot's spaces has been a top priority of the Library director and board for quite some time. For the last several years, after Library complaints, municipal plated vehicles are no longer parked in the lot at any time. Director McNulty reports this has been very successful. Municipal vehicles are now parked on the War Memorial Circle and on City Hall Drive, with a few on Homer Street.

Some City Hall employees do park in the back of the Library lot when the limited spots on Homer Street, Comm Ave and the non-public areas of City Hall Drive fill up. There is absolutely no other place to park. Many of us park well down Homer Street towards Comm Ave. and walk. During the summer months some are able to park along Walnut Street across the City Hall Ponds. This is not a feasible parking area during the darker months (there are no lights around the ponds) and wintertime conditions (the unpaved paths and grassy areas become an ice field). Even in the summer that area can be wet and muddy.

Since I see and watch daily the traffic and parking woes of City Hall Drive, I know that we have real challenges balancing the public's need to do business here, employee personal car parking and the comings and goings of municipal vehicles. One improvement we made this year was to move the "Meals-on-Wheels" Program trucks out of the Department Directors lot which was causing traffic jams, accessible parking problems, and taking up staff and councilor spots for hours a day. We successfully moved their operations to 150 Jackson Road. We have also installed two excellent push-button activated cross-walks on Homer Street to make it much safer to cross between the Library and City Hall Drive (as part of the state's project). This allows those able to walk a bit further to safely get over to the Library and back. The introduction of Lime Bikes has also been a popular way to get to and from the Library (and City Hall).

The City will be investing in significant Library improvements over the next several years – replacing 30 year old carpet and furniture, expanding the undersized Children's Room, and moving around and

reorganizing sections and spaces to meet today's needs and public demands. This follows up on the completion of the new Tween Room last year. A fully functional parking lot will be essential to fully activate the improved resources inside the Library. Great success comes with some challenges.

I hope that helps,

Jonathan



5. Do the Trustees need to approve plans at the Library and if so have they given the necessary approvals?

Jonathan Yeo's email of 1/30 provides this answer. It is duplicated below.

Please see the Library Board of Trustees' resolution passed in December. The City will comply with their 5 requested items.

Jonathan

Newton Free Library

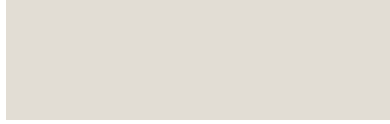
Board of Trustees Resolution on Solar Panel Project for the Library Parking Lot As Approved – December 19, 2018

The Trustees of the Newton Free Library are supportive of the City's plans to add solar power generation to the City's infrastructure. We recognize the potential gain to the City from reduced energy costs, as well as the important benefits to the environment of reducing fossil fuel use. For those reasons we approve further exploration of installing solar panel canopies in the Library parking lot, with the understanding that the Library Board of Trustees will have to formally approve final plans once detailed issues, including the following, have been addressed to the Trustees' satisfaction:

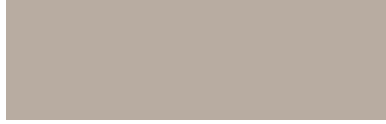
- (1) Specific tree-planting and landscaping plans that compensate for the removal of existing trees and shrubs, and that enhance the overall aesthetic of the Library lot;

- (2) Design plans for the parking lot that add parking spaces and generally improve parking lot operation, considering the Library's high usage by seniors and families with children;
- (3) Design of the canopies themselves, including aesthetics, night-lighting and rain/snow management;
- (4) Construction management plans and timing, their impact on parking and Library access during installation, and viable plans for mitigating that impact;
- (5) Economic assessment of the impact on the Library.

Finishes



White



Light Brown



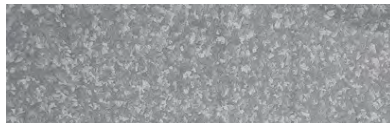
Dark Brown



Light Gray



Dark Gray



Galvanized

White

Color name : Cirrus White

Product # : SW 4012 by Sherwin-Williams



SUNPOWER®

Light Brown

Color name : Mortar

Product # : SW 4011 by Sherwin-Williams



Dark Brown

Color name : Umbra

Product # : SW 4008 by Sherwin-Williams



Light Gray

Color name : Nickel

Product # : SW 4030 by Sherwin-Williams



Dark Gray

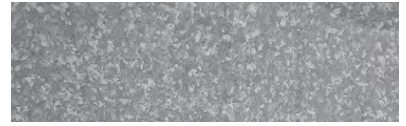
Color name : Graphite

Product # : SW 4017 by Sherwin-Williams



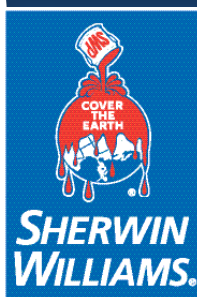
SUNPOWER®

Galvanized



2016 Library Canopies w/ brick bases





Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

ACROLON 218 HS is a polyester modified, aliphatic, acrylic polyurethane formulated specifically for in-shop applications. Also suitable for industrial applications. A fast drying, urethane that provides color and gloss retention for exterior exposure.

- Can be used directly over organic zinc rich primers (epoxy zinc primer and moisture cure urethane zinc primer)
- Color and gloss retention for exterior exposure
- Fast dry
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Gloss or Semi-Gloss
Color:	Wide range of colors available
Volume Solids:	65% ± 2%, mixed, may vary by color
Weight Solids:	78% ± 2%, mixed, may vary by color
VOC (EPA Method 24):	Unreduced: <300 g/L; 2.5 lb/gal mixed Reduced 10% with R7K15: <340 g/L; 2.8 lb/gal mixed Reduced 9% with MEK, R6K10: <340 g/L; 2.8 lb/gal
Mix Ratio:	6:1 by volume, 1 gallon or 5 gallon mixes premeasured components

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m²/L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1040 (25.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C	@ 120°F/49°C
		50% RH	
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
(reduced 5% with Reducer R7K15)			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent. Paint temperature must be at least 40°F (4.5°C) minimum.

Shelf Life:	Part A* - 36 months, unopened Part B - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
--------------------	-----------------------------------------------------------------------------------------------------------------

*Aluminum (Part A, Rex # B65SW655) has a shelf life of 24 months.

Flash Point:	55°F (13°C), Seta, mixed
Reducer/Clean Up:	
Spray:	Reducer R7K15, MEK R6K10, or R7K111
Brush / Roll:	Reducer #132, R7K132 or R7K111

RECOMMENDED USES

Specifically formulated for in-shop applications. For use over prepared metal and masonry surfaces in industrial environments such as:

- Structural steel
 - Rail cars and locomotives
 - Conveyors
 - Bridges
 - Wind Towers - onshore and offshore
 - Offshore platforms - exploration and production
 - Suitable for use in USDA inspected facilities
 - Conforms to AWWA D102 Outside Coating Systems #4 (OCS-4), #5 (OCS-5) & #6 (OCS-6)
 - Acceptable for use in high performance architectural applications
 - Acceptable for use over and/or under Loxon S1 and Loxon H1 Caulking
 - A component of INFINITANK
 - Over FIRETEX® hydrocarbon systems
 - Suitable for use in the Mining & Minerals Industry
- Tank exteriors
 - Pipelines
 - Ships

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Macropoxy 646 @ 6.0 mils (150 microns) dft

1 ct. Acrolon 218 HS Gloss @ 4.0 mils (100 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance¹	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	43 mg loss
Adhesion³	ASTM D4541	1976 psi
Corrosion Weathering³	ASTM D5894, 27 cycles, 9072 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Direct Impact Resistance¹	ASTM D2794	50 in. lb.
Dry Heat Resistance¹	ASTM D2485, Method A	200°F (93°C)
Flexibility¹	ASTM D522, 180° bend, 1/8" mandrel	Passes
Humidity Resistance²	ASTM D4585, 100°F (38°C), 1500 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance³	ASTM B117, 15,000 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering

Meets the requirements of SSPC Paint No. 36, Level 3 for white and light colors. Dark colors may require a clear coat.

Complies with ISO 12944-5 C5I and C5M requirements.

Footnotes:

¹ Finish coat only tested

² Primer Zinc-Clad II Plus

Intermediate Macropoxy 646

Finish Acrolon 218 HS

³Primer Zinc-Clad III HS



Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

PRODUCT INFORMATION

5.22

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
Steel:			
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad II Plus	3.0-5.0	(75-125)
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Corothane I-GalvaPac Zinc Primer	3.0-4.0	(75-100)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Epoxy Mastic Aluminum II	6.0	(150)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Concrete/Masonry:			
1 ct.	Kem Cati-Coat HS Epoxy Filler/Sealer	10.0-20.0	(250-500)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Aluminum/Galvanizing:			
1 ct.	DTM Wash Primer	0.7-1.3	(18-32)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
ISO 12944 C5M System:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Tower Guard Epoxy	5.0-11.5	(125-287.5)
1 ct.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)

FIRETEX ONLY:

Finish Coat for FIRETEX Hydrocarbon Systems:

1 ct. Acrolon 218 HS Polyurethane*

*Consult FIRETEX PFP Specialist for recommended dft range

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

- * Iron & Steel: SSPC-SP6/NACE 3, 1-2 mil (25-50 micron) profile
- * Galvanizing: SSPC-SP1
- * Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3

* Primer required

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Rusted	D St 2	D St 2	SP 2	-
Pitted & Rusted	D St 3	D St 3	SP 3	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted	D St 3	SP 3	-

TINTING

Tint Part A with Maxitoner Colorants.

- Extra white tints at 100% tint strength
- Ultradeep base tints at 150% tint strength

Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	1 gallon (3.78L) mix: 5 gallon (18.9L) mix:
Part A:	.86 gal (3.25L) 4.29 gal (16.2L)
Part B:	.14 gal (0.53L) 0.71 gal (2.7L)
(premeasured components)	

Weight: 11.2 ± 0.2 lb/gal ; 1.3 Kg/L
mixed, may vary with color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

APPLICATION BULLETIN

5.22

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs. Primer required.

Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

Follow the standard methods listed below when applicable:

ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Surface Preparation Standards					
	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up:

Spray.....	Reducer R7K15, MEK R6K10, or R7K111
Brush/Roll	Reducer #132, R7K132, or R7K111
If reducer is used, reduce at time of catalyzation.	

Airless Spray

Pressure.....	2500 - 2800 psi
Hose.....	3/8" ID
Tip013" - .017"
Filter	60 mesh
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Conventional Spray

Gun	Binks 95
Cap	63P
Atomization Pressure.....	50 - 70 psi
Fluid Pressure.....	20 - 25 psi
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Brush

Brush.....	Natural Bristle
Reduction.....	As needed up to 10% by volume*

Roller

Cover	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume*

If specific application equipment is not listed above, equivalent equipment may be substituted.

* Note: Reducing more than maximum recommended level will result in VOC exceeding 340g/L



Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

APPLICATION BULLETIN

5.22

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine six parts by volume of Part A with one part by volume of Part B (premeasured components). Thoroughly agitate the mixture with power agitation. Re-stir before using.

If reducer is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m ² /L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1040 (25.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
(reduced 5% with Reducer R7K15)			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Paint temperature must be at least 40°F (4.5°C) minimum.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #132, R7K132. Clean tools immediately after use with Reducer #132, R7K132. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15 or MEK, R6K10.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

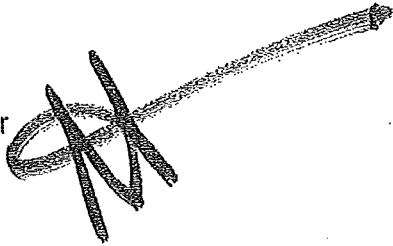
Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

**City of Newton
Purchasing
Department**

To: File
From: N. Read, Chief Procurement Officer
Date: September 20, 2018
Re: Solar Panel Phase 3 RFP 18-111



On 5/31/18 the City released RFP 18-111 for contractors to install solar panels at various city building locations. Four addenda were issued. Proposals were to be submitted by 7/12/18, and 6 contractors duly submitted proposals:

Ameresco Inc.
111 Speen Street
Framingham, Massachusetts 01701

Dagle Electrical Constriction Corp
618 Industrial Way
Wilmington, Massachusetts 01887

Greenskies Renewable Energy LLC
180 Johnson Street
P.O. Box 252
Middletown, Connecticut 06457

Macquarie CAF LLC
125 West 55th Street
New York, New York 10019

Nexamp
4 Liberty Square
Boston, Massachusetts 02109

SunPower
8 Cabot Road
No. 1100
Woburn, Massachusetts 01801

An evaluation committee made up of 4 persons¹ reviewed the Technical Proposals.

The Minimum Criteria ratings (deficiencies only noted)² are as follows:

	Macquarie	Ameresco	SunPower	Nexamp	Greenskies	Dagle
1. Timely submission of response and attendance at mandatory Pre-Bid Meeting.						
2. DCAMM Contractor Certification of Eligibility (Energy Management Services) & Update Statement	AM WF CG ³		AM			
3. Appendix B2: Certification of financial interest disclosure and of non-collusion.			AM WF			
4. Appendix B3: Certification of compliance with state tax laws, reporting of employees and contractors and			AM WF			

¹ A. Mandl, W. Ferguson, A. Berwick, and C. Laurent and G. Hall, collectively submitting a single set of evaluations on behalf of the Cadmus Group (CG).

² A. Berwick did not complete Minimum Criteria section.

³ Macquarie intends to partner with a contractor that holds the required DCAMM certification.

withholding and remitting of child support.						
5.Certification that the respondent, if ultimately awarded a contract, will guarantee completion of all work required within due dates or the time periods specific by the City.			CG	WF		
6.Evidence of appropriate insurance.						
7.At least one ground mount project developed in Massachusetts over the last five (5) years.	AM					AM
8.At least one solar canopy developed in Massachusetts over the last five (5) years	AM				WF	AM

Accordingly, no proposers were disqualified. However, by letter dated 9/13/18, Dagle Electric notified the City that it was withdrawing its submission.⁴

There were 8 comparative criteria, plus a separate criterion for Pricing Proposal and Methodology (Price Proposal). The Price Proposals were reviewed and ranked by

⁴ Dagle received a Composite Score on its Technical Proposal of NA+.

the evaluators separately after submission of their Technical Proposal evaluations sheets.

The rankings for each proposer (with the exception of Price Proposals) are as follows:

Ameresco Inc.

	AM	WF	AB	CG	
1. Quality Of Past Projects	[HA]	HA	HA	HA	
2. Personnel Qualifications And Availability	HA	HA	HA	HA	
3. Financing Capabilities	HA	HA	HA	HA	
4. Sample Contract And Required Terms.	HA	HA	A	HA	
5. Approach And Schedule	HA	HA	HA	HA	
6. Operations, Maintenance And Monitoring Plan	HA	HA	HA	HA	
7. Scope Of Proposal (Number Of Sites Included In Proposal):	NA	NA	NA	NA	
8. Proposer Interviews	*	HA	HA	HA	
Composite Ranking	HA-	HA	HA	HA	HA

Greenskies Renewable Energy LLC

	AM	WF	AB	CG	
1. Quality Of Past Projects	[HA]	HA	HA	HA	
2. Personnel Qualifications And Availability	A	A	A	HA	
3. Financing Capabilities	HA	HA	HA	HA	
4. Sample Contract And Required Terms.	A	A	A	NA	
5. Approach And Schedule	A	A	HA	HA	
6. Operations, Maintenance And Monitoring Plan	HA	HA	HA	HA	
7. Scope Of Proposal (Number Of Sites Included In Proposal):	HA	HA	HA	HA	
8. Proposer Interviews	A	A	HA	A	
Composite Ranking	HA-	A	HA	HA	HA-

Macquarie CAF LLC

	AM	WF	AB	CG	
1. Quality Of Past Projects	[HA]	HA	HA	A	
2. Personnel Qualifications And Availability	NA	NA	NA	NA	
3. Financing Capabilities	HA	HA-	HA	HA	
4. Sample Contract And Required Terms.	NA	NA	A	NA	
5. Approach And Schedule	A	NA	A	HA	
6. Operations, Maintenance And Monitoring Plan	A	NA	HA	HA	
7. Scope Of Proposal (Number Of Sites Included In Proposal):	A	A+	A	HA	
8. Proposer Interviews	NA	A	NA	NA	
Composite Ranking	A	A-	A/NA	A/NA	A-

Nexamp
(Shaded box = Ranking assigned by CPO)

	AM	WF	AB	CG	
1. Quality Of Past Projects	[HA]	HA	HA	HA	
2. Personnel Qualifications And Availability	HA	A	HA	A	
3. Financing Capabilities	HA	HA	HA	HA	
4. Sample Contract And Required Terms.	HA	A	A	HA	
5. Approach And Schedule	A	A-	HA	HA	
6. Operations, Maintenance And Monitoring Plan	NA	HA	HA	HA	
7. Scope Of Proposal (Number Of Sites Included In Proposal):	HA	A+	HA	HA	
8. Proposer Interviews	A	A	HA	A	
Composite Ranking	A+	A	HA	HA	HA-

*No ranking provided.

SunPower

	AM	WF	AB	CG	
1. Quality Of Past Projects	A	A	A	A	
2. Personnel Qualifications And Availability	NA	NA	NA	A	
3. Financing Capabilities	A	A+	HA	HA	
4. Sample Contract And Required Terms.	HA	A	A	HA	
5. Approach And Schedule	U	NA	HA	A	
6. Operations, Maintenance And Monitoring Plan	A	HA	HA	A	
7. Scope Of Proposal (Number Of Sites Included In Proposal):	NA	NA	NA	NA	
8. Proposer Interviews	NA	NA	A	A	
Composite Ranking	A-	NA	A	A/NA	A-

When evaluation of the Technical Proposals was complete, the Price Proposals were opens and the evaluators ranked the Price Proposals as follows:⁵

⁵ Numeric values were assigned to each of the ranking--from Highly Advantageous as 9 down to Unacceptable as 1--as a means of comparison. Numeric equivalents in parentheses.

AM	WF	AB	CG	Composite
Ameresco				
A (6)	A- (5)	A- (6)	NA (3)	A- (5)
Greenskies				
A (6)	A+ (7)	A (6)	HA/A (7)	A+ (6.5)
MacQuarie				
HA (9)	HA (9)	HA (9)	HA (9)	HA (9)
Nexamp				
U (1)	U (1)	U (1)	U (1)	U (1)
SunPower				
A (6)	A (6)	A (6)	A/NA (2)	A- (5)

The blended scores (with each given equal weight) for the Technical and Price Proposals are as follows:

Proposer	Technical Proposal	Price Proposal	Blended Proposal
Ameresco	HA (9)	A- (5)	A+ (7)
Greenskies	HA- (8)	A+ (6.5)	A+ (7.25)
MacQuarie	A- (5)	HA (9)	A+ (7)
Nexamp	HA- (8)	U (1)	A- (4.5)
SunPower	A- (5)	A- (5)	A- (5)

Nexamp and SunPower clearly rank below Ameresco, Greenskies and Macquarie, though Greenskies has a slight advantage over its two rivals by a slight margin. All three, however, have the same ranking of A+.

Based on the foregoing Bill Ferguson reviewed the relative merits of the three top proposers, and concluded that it is in the City's best interest to award 8 of the 26

proposed sites to Ameresco, and the balance of the sites to Macquarie. A copy of Bill's analysis in an email dated 9/20/18 is attached.

Accordingly, assuming that Macquarie meets its DCAMM certification requirement,⁶ I recommend that the contract be awarded to Ameresco and Macquarie in the manner described as the most advantageous proposers, with MOUs to be negotiated within 30 days of approval of the award with each of them as provided in Section 4.5 of the RFP.

⁶ See note 3 above.

Nick Read

From: William Ferguson
Sent: Thursday, September 20, 2018 1:15 PM
To: Nick Read
Cc: Alan D. Mandl; Ann G. Berwick; Gregory Hall; Chad Laurent; Joshua R. Morse
Subject: Solar Panel Phase 3 RFP #18-111 -Recommendation

Dear Nick,

In your report you have found that three proposers clearly rank above the other two proposers in a tight grouping of scores. Based on your report, discussions with the Evaluation Team and my experience with the development of the Phase 2 Solar projects I am providing my recommendation and the reasons for it.

RECOMMENDATION

My specific recommendation is to split the award between two of the top three proposers. Specifically, award Ameresco up to the eight locations that they proposed and award the balance of the sites to Macquarie. Macquarie provided the best pricing, by far, of all the proposers. They provide double the financial benefit to the City compared to their closest competitor who is Greenskies. This amounts to more than \$5 million in additional benefit to the City over the 20 year term of the contracts on a net present value basis (this value assumes that all sites will be developed which is not likely). However, they were not among the highest on the TE (Technical Evaluation) rating. That was Ameresco. I believe that it would be in the best interest of the City, to give Macquarie a chance to perform but mitigate the potential greater risk to the City for non-performance by splitting the award between Macquarie and Ameresco. I view Ameresco as having the lowest risk to the City for non-performance. They are a virtual lock. We will also mitigate the risk of non-performance associated with Macquarie by entering into a MOU and a PPA with strict milestones. If they fail to meet milestones early in the process then we will request either Ameresco or Greenskies pick up the Macquarie scope. Greenskies is among the top three overall rated proposers. This will require some discussion/negotiation with the companies in order to split up the projects in a manner where they will be able to maintain the pricing levels initially offered. Also note that Macquarie has not yet provided a DCAMM certificate for the Energy Management Services category. If they can not deliver this in short order (three business days) then we should replace them with Greenskies immediately. I contacted them this morning and they said I will have it by the end of the day. Also, the award letters to both Ameresco and Macquarie should stipulate no more than 30 calendar days to negotiate and sign the MOU.

CONTEXT

Development of these projects is time sensitive due to the structure of the Commonwealth's solar incentive program which they call SMART (Solar Massachusetts Renewable Target). First, the program allocates only 1600 MW statewide which is split geographically among the Commonwealth's utility service areas. Secondly, these MW are divided into blocks with the incentive value of each block declining over time. There is a backlog of projects waiting to enter this program that have been on hold while the Commonwealth has developed rules and regulations. This means that time is of the essence in developing these projects because the incentive values will decrease (possibly to the point where we not only lose savings but specific projects become no longer financially viable) and eventually the statewide MW allocation will be used up. We have great confidence that Ameresco will move very quickly and in fact they have promised in their proposal to file the Interconnection Applications as soon as they receive a notice of award. They also have a recent PPA with the City for Phase 2 Solar projects that can quickly be amended for these new projects under Phase 3. Development of a PPA with a new solar developer in a timely manner is a major concern.

DETAILS

Macquarie was ranked lower in the TE than Ameresco and Greenskies due primarily to their lack of experience in the Massachusetts market and the fact that this would be the first time their team is working together. This is not an ideal situation. However, there is good reason to believe that they may be able to perform acceptably. The lead partner for

project development and construction on this team is HESP Solar. They have done most of their work in New Jersey and have extensive experience in that market. I personally checked three references involving projects that they have completed for three different New Jersey counties/school districts. I spoke to a school superintendent, an administrator, and an attorney for a district improvement authority. They all gave HESP very high marks and were very impressed with and satisfied with HESP. These projects were at schools and municipal buildings and included parking canopies. A scope that is very similar to ours.

There has been some concern about the viability of the Macquarie financial deal given the disparity in pricing. A theory for why the pricing is so good is that Macquarie, a large international investment banking company specializing in renewable energy projects worldwide, is simply willing to offer a great financial deal in order to get a foothold in the Massachusetts market.

Note that, during interviews, both Macquarie and Greenskies agreed that they would be willing to accept a reduced list of sites.

I believe that this approach is in the best interests of the City.

William H. Ferguson CEM, LEED AP
Co-Director of Sustainability
Newton Dept. of Public Buildings
52 Elliot Street
Newton Highlands, MA 02461
(617) 796-1606 office
(857) 404-4929 cell
wferguson@newtonma.gov

**SOLAR FACILITIES LEASE AGREEMENT
BY AND BETWEEN THE CITY OF NEWTON AND
NEWTON MUNICIPAL SOLAR LLC**

This LEASE (as amended, modified or supplemented from time to time, the "Lease") made this 25th day of May, 2016, is by and between the **City of Newton**, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, with a mailing address of City Hall, 1000 Commonwealth Avenue, Newton Centre, MA 02459, acting by and through its Mayor, but without personal liability to him, (hereinafter the "Lessor" or the "City") and **Newton Municipal Solar LLC**, a Delaware limited liability company with a usual business address of 111 Speen Street, Ste 410, Framingham MA 01701 (hereinafter "Lessee"). Lessor and Lessee may be referred to individually as a "Party" and collectively, as the "Parties".

RECITALS

A. The Parties intend to enter into a Power Purchase Agreement (as same may be amended or modified from time to time, the "PPA"), pursuant to which the Lessee shall design, engineer, construct, install, operate and maintain a solar photovoltaic system for the production of electricity and corresponding Net Metering Credits (the "System"), to be further defined in the PPA .

B. In order to design, engineer, construct, install, operate and maintain the System, Lessee requires access to and use of Lessor's Properties (as hereinafter defined).

C. Lessor owns the Properties, and in connection with the foregoing, Lessor desires to lease the Leased Premises (described below) to Lessee in furtherance of Lessee's obligations under the PPA, and Lessee is willing to accept such Leased Premises from Lessor.

NOW, therefore, in consideration of the foregoing and the mutual covenants and agreements herein contained, the Parties agree as follows:

1. **Definitions.** Capitalized terms in this Lease shall have the meaning provided for hereunder or, if no definition is provided hereunder, the meaning provided for such capitalized term under the PPA.

2. **Lease of Property; Other Rights.**

a. The Lessor does hereby lease, demise and let unto Lessee and Lessee does hereby take, accept and lease from Lessor certain space at and on the following properties:

- (i) Newton South High School at 140 Brandeis Road
- (ii) Angier Elementary School at 1697 Beacon Street
- (iii) Oak Hill Middle School at 130 Wheeler Road
- (iv) Lower Falls Community Center at 545 Grove Street

- (v) Fire Station 10 at 755 Dedham Street
- (vi) Bowen Elementary School at 280 Cypress Street
- (vii) Department of Public Works at 70 Elliot Street

(each a “**Property**” and together, the “**Properties**”), such leased space referred to as the “**Leased Premises**”. Once the exact square footage of Leased Premises has been established following construction of the System, the Parties shall amend this Agreement with site plans or legal descriptions to more specifically identify the Leased Premises.

A general depiction of the proposed Leased Premises at each Property is set forth on Exhibit A. The Leased Premises are leased to Lessee together with the rights described in Sections 2(b), (c), (d) and (e).

b. Lessor hereby grants to Lessee and Lessee’s agents, contractors, subcontractor, employees, and consultants (“**Lessee Parties**”) the non-exclusive use of such additional space at each Property for the design, development, installation, operation and maintenance of utility lines, cables, conduits, transformers, wires, meters, monitoring equipment and other necessary equipment and appurtenances (“**Cabling Space**”) wherever located, whether between and among the floors of the buildings located on the Properties, the rooftop space, the Delivery Point, and all necessary electrical and other utility sources located within each building or on the Properties. The location of the Cabling Space shall be mutually agreed upon by the Parties.

c. Lessor hereby grants to Lessee and Lessee Parties non-exclusive rights of vehicular and pedestrian ingress and egress from all public right-of-ways over each Property to and from the respective Leased Premises and Cabling Space during normal business hours, and upon reasonable advance coordination with Lessor outside of normal business hours.

d. Lessor hereby grants to Lessee and Lessee Parties the temporary use of reasonably sufficient additional space near the Leased Premises for construction laydown, storage of construction materials, parking of construction crew vehicles and trailers, and for System removal, such area to be agreed upon by the Parties prior to construction or removal, as the case may be. Lessor shall designate such additional space for Lessee’s use when construction commences.

e. Lessor hereby grants to Lessee and Lessee Parties the use of Lessor’s water supply already available at the Properties for purposes of construction, cleaning, operation and maintenance of the System.

f. Lessor shall deliver the Leased Premises to Lessee on the date of this Lease in a condition ready for Lessee’s installation of the System, clean and free of debris. Lessor represents and warrants to Lessee that as of the date of this Lease, the Leased Premises, the existing structure of each Building (including without limitation the roof, foundations and exterior walls) and all Building systems (including without limitation, the plumbing, electrical, ventilating, air conditioning and heating) are: (a) in good operating condition and free of any leakage, (b) in compliance with all Applicable Law, and (c) free of any substance or matter

defined as a toxic or Hazardous Substance or material or pollutant or contaminant under any Laws, or any other substance or matter imposing liability for cleanup costs or expenses on any person or entity under Applicable Laws.

3. Lease Term and Rental. The term of this Lease ("**Term**") shall begin on the date of this Lease, run concurrently with the term of the PPA and terminate on the date the PPA terminates. Either Party hereto may terminate this Lease, upon written notice to the other Party, without being considered in default and without liability, a mutually-acceptable PPA is not executed within ninety (90) days of execution of this Lease, as extended if applicable. Lessee shall pay to Lessor annual rent of \$1.00, payable at the time of execution of this Lease and thereafter on or before the execution anniversary dates during each year of the remainder of the Term. Rent shall be paid by check made payable to the City of Newton and, after the initial rental payment, mailed or hand-delivered to:

Treasurer-Collector
City of Newton
1000 Commonwealth Avenue
Newton Centre, MA 02459

4. System Construction, Installation, Operation and Maintenance

a. Lessor consents to the design, development, installation, construction, operation, testing, maintenance, repair, replacement and removal of the System by Lessee on the Premises including, without limitation, solar panels, mounting substrates, supports, wiring and connections, power inverters, service equipment, metering equipment and utility interconnections. The Lessee shall perform a structural analysis of the Properties to confirm the structural suitability of the roofs and related structures for construction and operation of the System.

b. The System design shall not include any rooftop penetrations unless (i) the Lessor agrees in writing to specific rooftop penetrations in specific locations and (ii) no such rooftop penetrations reduce any existing rooftop warranties.

c. The locations of all System inverters are subject to approval by the Lessor, taking into account any visual and safety considerations, and to Applicable Law.

d. Lessee shall have the following rights during the Term hereof:

(i) To develop, design, engineer, construct, install, operate and maintain the System on the Premises, subject to the terms and conditions of this Lease and the PPA; and

(ii) To clean, repair, replace and remove and dispose of part or all of the System as Lessee, in its reasonable discretion, determines to be necessary.

e. Lessor acknowledges and agrees that notwithstanding the System's presence on the

respective Properties, Lessee is the exclusive owner and operator of the System, Lessor has no ownership or other interest in the System or other equipment or personal property of Lessee installed on the Properties, and Lessee may remove all or any portion of the System or other equipment or personal property at any time in compliance with this Lease and the PPA. Lessor further acknowledges and agrees that the System may not be sold, leased, assigned, mortgaged, pledged or otherwise alienated or encumbered (collectively, a “**Transfer**”) with the fee interest or leasehold rights to the Properties or otherwise by Lessor, any person acting for, on behalf of, through, or for the benefit of Lessor, or any other subsequent owner of such interest in the Premises.

f. The Lessor shall not permit any mechanics' liens, or similar liens, to remain upon the Premises for labor and material furnished to the Lessor or claimed to have been furnished to the Lessor in connection with work of any character performed or claimed to have been performed at the direction of the Lessor and shall cause any such lien to be released of record or bonded over forthwith without cost to the Lessee. Without limiting the generality of the foregoing, Lessor hereby waives any statutory or common law lien that it might otherwise have in or to the System or any portion thereof. Lessor shall give Lessee at least thirty (30) days written notice prior to any Transfer of all or a portion of a Property identifying the transferee, the portion of such Property to be Transferred and the proposed date of Transfer. Lessor shall require any transferee to assume Lessors obligations and acknowledge and consent to the terms of this Lease. Lessor agrees that this Agreement shall run with each respective Property and survive any Transfer of each respective Property.

5. Access to Premises

(a) Lessee and its sub-contractors, agents, consultants, and representatives shall have access at reasonable times to the Premises for the purpose of planning, constructing, operating, inspecting, maintaining, replacing, repairing and removing the System, and to any documents, materials and records of Lessor relating to the Premises that Lessee reasonably requests in conjunction with these activities. Section 4.09 of the PPA, with respect to CORI and SORI checks, is specifically acknowledged by the Parties and is incorporated by reference into this Lease. During any such activities, Lessee, and its sub-contractors, agents, consultants and representatives, shall comply with Lessor's reasonable safety and security procedures (as may be promulgated from time to time and communicated to Lessee in writing), and Lessee and its sub-contractors, agents, consultants and representatives shall conduct such activities in such a manner and such a time and day as to minimize interference with Lessor's activities to the extent reasonably practicable. Notwithstanding anything in this Lease or PPA to the contrary, Lessee shall be allowed immediate access to the Premises and the System in connection with any emergency condition then existing with respect to the System that could reasonably be expected to pose an imminent threat to the safety of persons or property.

(b) Lessor shall not cause or permit any interference with (i) the insolation to the System or (ii) access to sunlight. Lessor shall not build or cause to be built any structure or, to the extent within its reasonable control to prevent, permit any third party to build any structure or permit any vegetation or airborne or particulate matter to block or interfere with the System's

access to sunlight.

(c) Lessor covenants that Lessee shall peaceably and quietly have, hold and enjoy its leasehold interest in the Leased Premises during the Term in accordance with this Lease and the PPA, and Lessor shall cooperate as reasonably requested by Lessee to protect and defend Lessee's leasehold interest hereunder from any other rights, interests, titles and claims arising through Lessor or any third person or entity that threatens or challenges such leasehold interest.

6. Maintenance and Repair of Premises

a. Lessee shall repair all damage to the Properties to the extent caused by or relating to Lessee's construction, installation, operation, maintenance and removal of the System. Lessee shall keep the Leased Premises in good order and condition.

b. During the Term, Lessor shall maintain in good operating condition and repair the Properties including foliage, vegetation, structural elements and all building systems (including but not limited to, the foundations, exterior walls, structural condition of interior bearing walls, roof, fire sprinkler, electrical system (but not including the System), and utility systems). All maintenance of the Properties shall be the responsibility of Lessor, except for maintenance of the System which shall be Lessee's responsibility.

7. Statutory and Regulatory Compliance

Lessee shall comply with all provisions of applicable federal, state, and local laws, ordinances, regulations, rules and orders in connection with the construction, operation and maintenance of the System by Lessee and its contractors, subcontractors, employees and agents.

8. Maintenance.

a. Lessee shall properly maintain the System in good order and working condition, and in compliance with all federal, state and local laws, rules, and regulations, and any future amendments thereto. Prior to making any alterations or improvements to a Property, Lessee shall obtain the Lessor's consent, which shall not be unreasonably withheld or delayed.

b. The Lessee, except with the reasonable consent of the Lessor, shall not permit any mechanics' liens, or similar liens, to remain upon the Premises for labor and material furnished to the Lessee or claimed to have been furnished to the Lessee in connection with work of any character performed or claimed to have been performed at the direction of the Lessee and shall cause any such lien to be released of record or bonded over forthwith without cost to the Lessor.

9. Insurance. Lessee and Lessor shall obtain and maintain the insurance coverage required under the PPA. Lessor shall provide Lessee with a description of its insurance and self-insurance upon the execution of this Lease and the PPA.

10. Non-Disturbance Agreement. Lessor represents and warrants that it owns fee title to

each Property and that as of the date of this Lease, there are no ground leases, master leases, liens, security interests or other encumbrances on any of the Properties. To the extent, if any, that any third party has any interest in the Properties or any other claim, lien, encumbrance or right of possession on or against the Properties or Leased Premises, Lessor will promptly obtain such consents, non-disturbance agreements or other written documents as Lessee may reasonably request in order to evidence the consent of such third party to the transactions contemplated by this Lease and the acknowledgement by such third party of the right, title and interest of Lessee in and to the Properties and the System.

11. Eminent Domain.

a. If part of a Property is taken by eminent domain or by way of condemnation such that the balance of such Property remains unsuitable for Lessee's use and operation of the System, as reasonably determined by Lessee, then the Parties shall meet to discuss a mutually agreeable alternative arrangement for operation of the System. If no alternative arrangement is acceptable to Lessee, then Lessee may terminate this Lease.

b. If the entirety of a Property shall be taken by right of eminent domain, the Lease shall terminate as of the time that possession is required by the taking authority. Lessor reserves, and the Lessee grants to the Lessor, all rights which the Lessee may have for damages or injury to the Leased Premises for any taking by eminent domain, except for damage to the Lessee's fixtures, property, or equipment. The parties will be entitled to share in the condemnation proceeds in proportion to the values of their respective interests in the Property, which for Lessee will include, where applicable, the value of its Facility, moving expenses, prepaid rent, and business dislocation expenses.

12. Term and Termination. Within one hundred twenty (120) days after termination of this Lease, Lessee shall remove the System and any of its vehicles, equipment or other materials, and repair any damage to the Property caused by such removal. In connection with such removal, Lessor shall continue to provide Lessee and Lessee Parties with access to the Properties without payment of any additional rent. Lessee shall maintain all insurance required under this Lease and any security for the cost of removal required under the PPA until removal of the System is complete.

13. Assignment. Article XI of the PPA is specifically acknowledged by the Parties and is incorporated by reference into this Lease.

14. Amendment. No amendment to this Lease shall be valid unless made in writing and signed by a duly authorized agent of Lessee and the Lessor. No provision may be waived except in a writing signed by the duly authorized signatory of the Lessor and a duly authorized signatory of the Lessee.

15. Severability. If any term or condition of this Lease is found to be unenforceable under Applicable Law, the remaining terms and conditions shall remain binding upon the Parties as though said unenforceable provision were not contained herein, and if appropriate, such invalid

or unenforceable provision shall be modified or replaced to give effect to the underlying intention of the Parties.

16. Interpretation. Unless otherwise specified, the following rules of construction and interpretation apply: (a) Captions are for convenient reference only and in no way define or limit the construction of the terms and conditions hereof; (b) use of the term "including" shall be interpreted to mean "including but not limited to;" use of the terms "termination" or "expiration" are interchangeable; use of the terms "will" and "shall" are interchangeable, and mandatory, rather than permissive; (c) except as otherwise expressly stated, whenever a party's approval or consent is required under this Lease, such consent shall not be unreasonably withheld or delayed; (d) reference to a default shall take into consideration any applicable notice, grace and cure periods; and (e) exhibits are an integral part of the Lease.

17. Governing Law. This Lease Agreement and the performance thereof shall be governed, interpreted, construed and regulated by the laws of the Commonwealth of Massachusetts. Each of the Parties consents to the exclusive jurisdiction of the state or federal courts of the Commonwealth of Massachusetts with respect to all disputes arising under or out of this Agreement. LESSOR AND LESSEE EXPRESSLY WAIVE ANY RIGHT TO TRIAL BY JURY IN ANY ACTION OR PROCEEDING TO WHICH LESSOR OR LESSEE MAY BE PARTIES ARISING OUT OF OR IN ANY WAY PERTAINING TO THIS AGREEMENT.

18. Notices. All notices must be in writing and shall be deemed validly given if sent by certified mail, return receipt requested, addressed as follows (or any other address that the Party to be notified may have designated to the sender by like notice) and shall be deemed received as of the earlier of five days after the date of the postmark or actually receipt thereof:

LESSOR:

City Solicitor
City of Newton Law Department
1000 Commonwealth Avenue
Newton Centre, MA 02459

LESSEE: Newton Municipal Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701

With a copy to: Ameresco, Inc.
111 Speen Street, Suite 410
Framingham, MA 01701
Attention: General Counsel

19. Notice of Lease. Lessor agrees to execute a Notice of Lease pursuant to G.L. c. 183, §4, to be prepared by Lessee in the form of Exhibit B hereto, which Notice may be recorded by Lessee at its expense. Immediately upon recording of such Notice, a copy shall be sent to the Lessor.

20. Entire Agreement. This Lease and the PPA contain all the agreements, promises and understandings between the Lessor and Lessee and no oral agreements, promises or understandings shall be binding upon either the Lessor or Lessee in any disputes, controversy or proceeding at law, and any addition, variation or modification to this Lease shall be void and ineffective unless made in writing and signed by the Parties hereto in accordance with Section 14 of this Lease.

21. Representations and Warranties of Lessor

a. Authorization; Enforceability. The execution and delivery by Lessor of, and the performance of its obligations under, this Lease have been duly authorized by all necessary action, do not and will not require any further consent or approval of any other person, and do not contravene any provision of, or constitute a default under any indenture, mortgage or other material agreement binding on Lessor or any valid order of any court, or regulatory agency or other body having authority to which Lessor is subject. The Parties acknowledge that Lessor's payment obligations under the PPA may be subject to appropriation. The Parties further acknowledge that this Lease and the PPA are predicated upon an interconnection agreement with the LDC.

b. Lessor's Title to Premises. Lessor represents, warrants and covenants that Lessor has a lawful fee interest title in the Properties. Lessor shall not sell, lease, assign, mortgage, pledge or otherwise alienate or encumber the Properties unless Lessor shall have given Lessee at least thirty (30) days' prior written notice thereof, which notice shall identify the transferee, the Property(ies) to be so transferred and the proposed date of transfer. Lessor agrees that this Lease and the right of access granted hereunder shall run with the respective Properties and survive any transfer of any of the Properties. In furtherance of the foregoing, Lessor shall cause any purchaser, lessee, assignee, mortgagee, pledge or party to whom a lien has been granted to execute and deliver a document pursuant to which such party acknowledges and consents to the Lessee's rights in the Properties as set forth herein, including without limitation an acknowledgement by the transferee that it has no interest in the System and shall not gain any interest in the System by virtue of Lessor's transfer.

c. No Interference with and Protection of System. Lessor will not conduct activities on, in or about the Properties that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the System or operation thereof. Nothing contained in this provision shall preclude Lessor from conducting the maintenance and repair, as needed, of the Properties, or snow removal by Lessor in cases of snow loading that could affect the integrity of roofing; provided, that Lessor shall not remove snow from the surface of the photovoltaic modules nor shall Lessor be permitted to remove snow inside of the Leased Premises; except as mutually agreed upon by the Parties with respect to snow removal on parking lots underneath canopies.

d. Maintenance of Premises. Subject to the terms and conditions hereof, Lessor shall have full access and use of the Properties, including but not limited access for the purpose of

maintenance and repair.

e. **Hazardous Materials.** Lessor represents that, to the best of its knowledge, there are no substances, chemicals or wastes, identified as hazardous, toxic or dangerous materials under Applicable Law ("Hazardous Materials") present on, in or under the Properties in violation of any Applicable Law. Lessor shall not introduce or use any Hazardous Materials on, in or under the Properties in violation of any Applicable Law. If Lessor becomes aware of any such Hazardous Materials, Lessor shall promptly notify in writing Lessee of the type and location of such materials, to the extent known by Lessor,

f. **Premises Conditions.** Lessor represents and warrants to Lessee that Lessor is unaware of any site conditions (a) that would materially increase the cost of installing the System at the planned locations on the Properties (b) that would adversely affect the ability of the System as designed to produce electricity once installed, absent conditions beyond Lessor's reasonable control. The Parties acknowledge Lessee's obligation under Section 4 above to conduct a structural analysis of the Premises.

22. Representations and Warranties of Lessee

a. **Authorization; Enforceability.** The execution and delivery by Lessee of, and the performance of its obligations under, this Lease have been duly authorized by all necessary action, do not and will not require any further consent or approval of any other person, and do not contravene any provision of, or constitute a default under any indenture, mortgage or other material agreement binding on Lessee or any valid order of any court, or regulatory agency or other body having authority to which Lessee is subject. This Lease constitutes a legal and valid obligation of Lessee, enforceable against Lessee in accordance with its terms, except as may be limited by bankruptcy, reorganization, insolvency or laws relating to or affecting creditors' rights generally. The Parties acknowledge that this Lease and the PPA are predicated upon an interconnection agreement with the LDC.

b. **Hazardous Materials.** Lessee shall not introduce or use any Hazardous Materials on, in or under the Properties in violation of any Applicable Law. If Lessee becomes aware of any such Hazardous Materials, Lessee shall promptly notify in writing Lessor of the type and location of such materials, to the extent known by Lessee.

c. **No Interference with and Protection of Lessor Solar Panels.** Lessee will not conduct activities on, in or about the Premises that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the existing solar panels of Lessor.

d. **Insolation.** Lessee shall not cause or permit any interference with the existing solar panels of Lessor's Insolation and access to sunlight, as such access exists as of the Effective Date, or build any structure or permit any third party to build any structure that blocks the Lessor's existing solar panels' access to sunlight.

e. **Regulatory Status.** Lessee represents and warrants that it is not an electric utility or

electric corporation as defined under Massachusetts law.

f. **Liens.** Lessee shall not directly or indirectly cause, create, incur, assume or suffer to exist any mortgage, pledge, lien, charge, security interest, encumbrance or claim on or with respect to the Premises and agrees to discharge any such encumbrance or interest that attaches to the Premises.

23. **Taxes.** The Parties acknowledge that Section 5.04 of the PPA sets forth each Party's obligations with regard to taxes and governmental fees and is incorporated herein as if set forth in its entirety.

24. **Liability and Indemnity**

(a) The Lessee shall indemnify, defend, and hold harmless the Lessor and all of its officers, employees, boards, commissions, and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind ("Losses") from or to third parties which arise out of the performance of Lessee's work, provided that such Losses are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property but only to the extent caused by the negligent or intentional acts or omissions of the Lessee, its employees, agents, subcontractors, or anyone directly or indirectly employed by them or anyone for whose acts Lessee is legally liable. This indemnity obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of the Lessor, but the Lessee's obligation to pay Losses shall be reduced in proportion to the percentage by which the Lessor's negligent or intentional acts, errors or omissions caused the Losses.

(b) To the extent permitted by law, Lessor shall indemnify and hold harmless Lessee from and against any and all Losses from or to third parties for injury or death to persons or damage or loss to or of property to the extent arising out of the negligent or intentional acts or omissions of the Lessor, its employees, agents, subcontractors or representatives. This indemnity obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of Lessee, but the Lessor's obligation to pay Losses shall be reduced in proportion to the percentage by which the Lessee's negligent or intentional acts, errors or omissions caused the Losses. Notwithstanding the foregoing, the extent of the Lessor's indemnification shall not exceed the Lessor's liability for the negligent acts or omissions of its employees as governed by Massachusetts General Laws Chapter 258.

(c) Neither Lessor nor its officers, employees, boards, committees, commissions, agents and representatives shall be under any personal obligation or incur any personal liability by reason of this Agreement, the execution thereof or anything relating thereto which arises out of the breach or violation of any provision of this Agreement.

(d) The provisions of this section shall survive the expiration or earlier termination of the Agreement.

(e) NO CONSEQUENTIAL DAMAGES

NOTWITHSTANDING ANY PROVISION OF THIS LEASE TO THE CONTRARY, NEITHER LESSEE NOR LESSOR SHALL BE LIABLE TO THE OTHER FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL, PUNITIVE OR INDIRECT DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF USE, LOSS OF PROFITS, COST OF CAPITAL OR INCREASED OPERATING COSTS, ARISING OUT OF THIS LEASE WHETHER BY REASON OF CONTRACT, INDEMNITY, STRICT LIABILITY, NEGLIGENCE OR BREACH OF WARRANTY; provided, however, that the aforementioned clause shall not eliminate or reduce Lessor's obligations to compensate Lessee for lost revenue under Section 24(g), or as expressly set forth in other sections of this Lease or PPA.

(f) Nothing contained in this Lease shall constitute a waiver by Lessor of limitations on liability of Lessor under the Massachusetts Tort Claims Act, General Laws Chapter 258, as from time to time amended.

(g) Hazardous Materials.

(i) Lessor Hazardous Materials. Lessee shall not be responsible for any liabilities, damages, costs, or expenses related to: (i) any pre-existing Hazardous Materials encountered at, released from, or transported from the Properties; or (ii) any Hazardous Materials brought onto the Properties or released by Lessor or Lessor's agents, employees, contractors, subcontractors, licensees, or invitees (items (i) and (ii) together ("Lessor Hazardous Materials"). To the extent permitted by law, Lessor shall indemnify and hold harmless Lessee from any liability, damages, costs or expenses (including reasonable attorneys' fees) incurred by Lessee arising out of or related to the Lessor Hazardous Materials. Upon encountering any materials that Lessee suspects may constitute Lessor Hazardous Materials, Lessee shall immediately notify Lessor and may suspend work in the affected area as reasonably necessary until such materials are properly remediated by Lessor; provided, however, that Lessee shall not be responsible for any liabilities, damages, costs or expenses related to such Lessor Hazardous Materials.

(ii) Lessor Remediation. If Lessor Hazardous Materials are encountered at the Property in violation of any Applicable Legal Requirements and prevent or interfere with the installation of the System, Lessor shall remediate such Lessor Hazardous Materials at its own cost and expense. Lessee shall stop work in the affected area until Lessor can demonstrate that all required remediation is complete. After the Commercial Operation Date, if Lessor Hazardous Materials are encountered at the Leased Premises, and Lessor is required by Applicable Legal Requirements to remediate the Lessor Hazardous Materials, then Lessor shall notify Lessee in writing of the extent of Lessor's planned remediation. If the System must be removed or Lessee's ability to operate, inspect, test, maintain, repair or replace the System is hindered in any way by Lessor's performance of such remediation, Lessor shall be responsible for all documented costs incurred by Lessee to remove, store and reinstall the System or any part thereof, and lost revenue (reasonably estimated and documented by Lessee) due to any excess downtime, and if mutually acceptable to the Parties, the Term shall be extended day for day for each day of interruption due to Lessor's remediation to mitigate any such lost revenue.

(iii) Lessee Hazardous Materials. If Lessee directly causes a release of Hazardous Materials, Lessee shall perform all required remediation. Lessee shall indemnify and hold harmless Lessor from any costs or expenses incurred by Lessor due to any release of Hazardous Materials on the Leased Premises caused by Lessee or its subcontractors in excess of quantities allowed under Applicable Legal Requirements.

25. Provisions Regarding Financing Parties

a. The Parties acknowledge that the Lessee may finance the construction and operation of the System through non-recourse project financing, asset-backed financing, lease/purchase financing, tax equity investment or other type of financing, and in each case, ownership of the System may be transferred to a third party, and Lessee may pledge its interest in this Lease including any rights to payment, and the System as security for loans or financing. Lessor agrees to cooperate with the Lessee in the negotiation and execution of any reasonable amendment or addition to this Lease required by the financing parties so long as such amendment or addition does not result in a material adverse change in the Lessor's rights or obligations hereunder.

b. The lenders will require such financing to be secured by a first lien on the Lessee's assets and the System, including a collateral or full assignment of this Lease and all of Lessee's rights and obligations hereunder. Accordingly, this Lease or Lessee's rights to receive payments hereunder, may be assigned by the Lessee in connection with the financing or any refinancing of the System, alone or aggregated with other comparable systems, without further consent of the Lessee. Lessor acknowledges that it has been advised that part of the collateral securing financial accommodations of Lessee is the granting of a first priority security interest in the System to be perfected by a filing under the Uniform Commercial Code and to be documented in a recorded notice on title to the Premises. Lessor (i) agrees to execute such consent and agreement or similar documents with respect to a collateral assignment hereof as the lenders may reasonably request in connection with the financing or refinancing of the System and (ii) acknowledges that such consent and agreement or similar documents will, among other things, require the Lessor to give the lenders notice of, and an opportunity to cure, any breach by the Lessee hereunder.

c. No financing arrangement by Lessee shall materially reduce any of Lessor's rights and Lessee's obligations under this Lease.

26. No Third Party Beneficiaries. This Lease is solely for the benefit of the Parties and no right or cause of action shall accrue by reason hereof for the benefit of any third party not a party hereto, other than the Lessor Indemnitees, the Lessee Indemnitees and any lenders or secured parties, as provided herein; provided that any Designated Third Party (as defined below) shall be an intended third party beneficiary of this Lease.

27. Defaults and Remedies. If either Party breaches any material term of this Lease the

non-defaulting Party shall provide written notice to the defaulting Party describing the nature of the default (a "Default Notice"). Following the receipt of a Default Notice (a) if such breach is capable of being cured within thirty (30) days after notice of such breach, the defaulting Party shall cure the breach within such thirty (30) day period, or (b) if the defaulting Party has diligently commenced work to cure such breach during such thirty (30) day period but additional time is needed to cure the breach, the defaulting Party shall cure such breach within ninety (90) days from the date of receipt such Default Notice (such uncured default, following expiration of notice and cure periods, an "Event of Default"). Upon an Event of Default, the non-defaulting Party shall have the remedies as provided in the PPA. A default beyond notice and cure periods under the PPA shall also constitute an Event of Default under this Lease.

28. Waiver. The waiver by either party of any breach of any term, condition or provision herein contained shall not be deemed to be a waiver of such term, condition or provision. Or of any subsequent breach of the same, or any other term, condition or provision contained herein.

29. Remedies Cumulative. No remedy herein conferred upon or reserved to Lessee or Lessor shall exclude any other remedy herein or by law provided, but each shall be cumulative and in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute.

30. Binding Effect. This Lease and its rights, privileges, duties and obligations shall inure to the benefit of and be binding upon each of the parties hereto, together with their respective successors and permitted assigns.

31. Counterparts. This Lease may be executed in counterparts, which shall together constitute one and the same agreement. Facsimile or "pdf" signatures shall have the same effect as original signatures and each party consents to the admission in evidence of a facsimile or photocopy of this Lease in any court or other proceeding between the parties.

32. Further Assurances. Upon receipt of a written request from the other Party, each Party shall execute such additional documents, instruments or assurances and take such additional actions (including the prompt and proper recording of this Lease) as are reasonably necessary to carry out the terms and intent hereof. Neither Party shall unreasonably withhold, condition or delay its compliance with any reasonable request made pursuant to this section.

33. Dispute Resolution. The Parties acknowledge and agree that Article IX of the PPA is incorporated herein by reference as if set forth fully in this Lease and governs the rights and duties with regard to this Lease as it does the PPA.

34. Certificates. Either Party hereto, without charge, at any time and from time to time, within fifteen (15) business days after receipt of a written request by the other Party hereto, shall deliver a written instrument, duly executed, certifying to such requesting Party, or any other person, firm or corporation specified by such requesting Party:

a. That this Lease is unmodified and in full force and effect, or if there has been any

modification, that the same is in full force and effect as so modified, and identifying any such modification;

b. Such other information as may be reasonably requested by the other Party; and

Any written instrument given hereunder may be relied upon by the recipient of such instrument, except to the extent that the recipient has actual knowledge of facts or information contained in the written instrument.

35. Tax Attestation and Non-Collusion Certificates. Simultaneously with the execution of this Agreement by Lessee, Lessee shall also execute and deliver to Lessor a Tax Attestation Certificate in the form of Exhibit C hereto and a Non-Collusion Certificate in the form of Exhibit D hereto.

36. Financing Provisions. Notwithstanding any contrary provisions contained in this Agreement, including without limitation Section 13, Lessor specifically agrees, without any further request for prior consent but with advance written notice to Lessor which will identify any such assignee, to permit Lessee to assign, transfer or pledge its rights under this Agreement and its rights and title to the Facilities for the purpose of obtaining financing or refinancing in connection with the Project (including, without limitation, pursuant to a sale-leaseback or partnership flip transaction) and to sign any agreement reasonably requested by Lessee or its lenders to acknowledge and evidence such agreement; provided, however, that such agreement does not adversely affect the rights of Lessor or materially alter the obligations owed to Lessor under the terms of this Agreement.

37. Third Party Rights.

(a) Notice to Designated Third Party. Lessor agrees to give copies of any notice provided to Lessee by Lessor under Section 18 to any assignee or transferee permitted pursuant to Section 36 (each, a "Designated Third Party").

(b) Exercise of Lessee Rights. Any Designated Third Party, as collateral assignee and if allowed pursuant to its contractual arrangements with Lessee, shall have the right in the place of Lessee, to any and all rights and remedies of Lessee under this Agreement. Such Designated Third Party shall also be entitled to exercise all rights and remedies of secured parties generally with respect to this Agreement, subject to the terms of this Agreement.

(c) Performance of Lessee Obligations. A Designated Third party shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of Lessee hereunder or cause to be cured any default of Lessee hereunder in the time and manner provided by and subject to the terms of this Agreement. Nothing herein requires the Designated Third Party to cure any default of Lessee under this Agreement or (unless such party has succeeded to the Lessee's interests under this Agreement) to perform any act, duty or obligation of Lessee under this Agreement, but Lessor hereby gives

such party the option to do so, provided any such cure, act, duty or obligation is performed in accordance with the terms of this Agreement.

(d) Exercise of Remedies. Upon the exercise of secured party remedies, including any sale of one or more of the Facilities by a Designated Third Party, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from Lessee to the Designated Third Party (or any assignee of the Designated Third Party) in lieu thereof, the Designated Third Party shall give notice to Lessor of the transferee or assignee of this Agreement. Any such exercise of secured party remedies shall not constitute a default under this Agreement, unless the act of exercising such remedy itself constitutes an Event of Default.

(e) Lessor agrees that each Designated Third Party is a third party beneficiary of the provisions of this Section.

(f) Lessor shall not exercise any rights to terminate or suspend this Agreement unless it shall have given the Designated Third Party a copy of prior written notice of its intent to terminate or suspend this Agreement specifying the condition giving rise to such right, and the Designated Third Party shall not have caused to be cured the condition giving rise to the right of termination or suspension within ninety (90) days after Lessee's cure period expires with respect to payment defaults and one hundred twenty (120) days with respect to all other defaults. The parties' respective obligations will otherwise remain in effect during any cure period

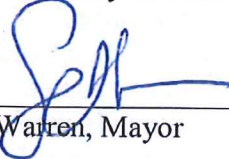
(g) If pursuant to an exercise of remedies by a Designated Third Party, such party or its assignee shall acquire control of the Facilities and this Agreement, and shall within the time periods describe in the preceding paragraph (f) cure all defaults under this Agreement existing as of the date of such change in control in the manner required by this Agreement, then such person or entity shall no longer be in default under this Agreement and this Agreement shall continue in full force and effect.

(h) Lessor agrees to cooperate with Lessee and its financing parties in connection with any financing or refinancing of all or a portion of the Facilities. In furtherance of the foregoing, as Lessee or its financing parties request from time to time, Lessor agrees, subject to the other provisions of this Agreement, to (i) execute any consents to assignment or acknowledgements, (ii) negotiate and deliver such reasonable estoppel certificate as an existing or prospective Designated Third Party may reasonably require, and (iii) furnish such reasonable information as Lessee and its financing parties may reasonably request.

[Signatures Follow]

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their respected seals as of the date first written above.

LESSOR: City of Newton



Setti Warren, Mayor

Approved as to Form:

Name: DeLo
Title: Asst City Solicitor
Date: MAY 25, 2016

LESSEE: Newton Municipal Solar LLC

By: Ameresco, Inc., its sole member

By: 

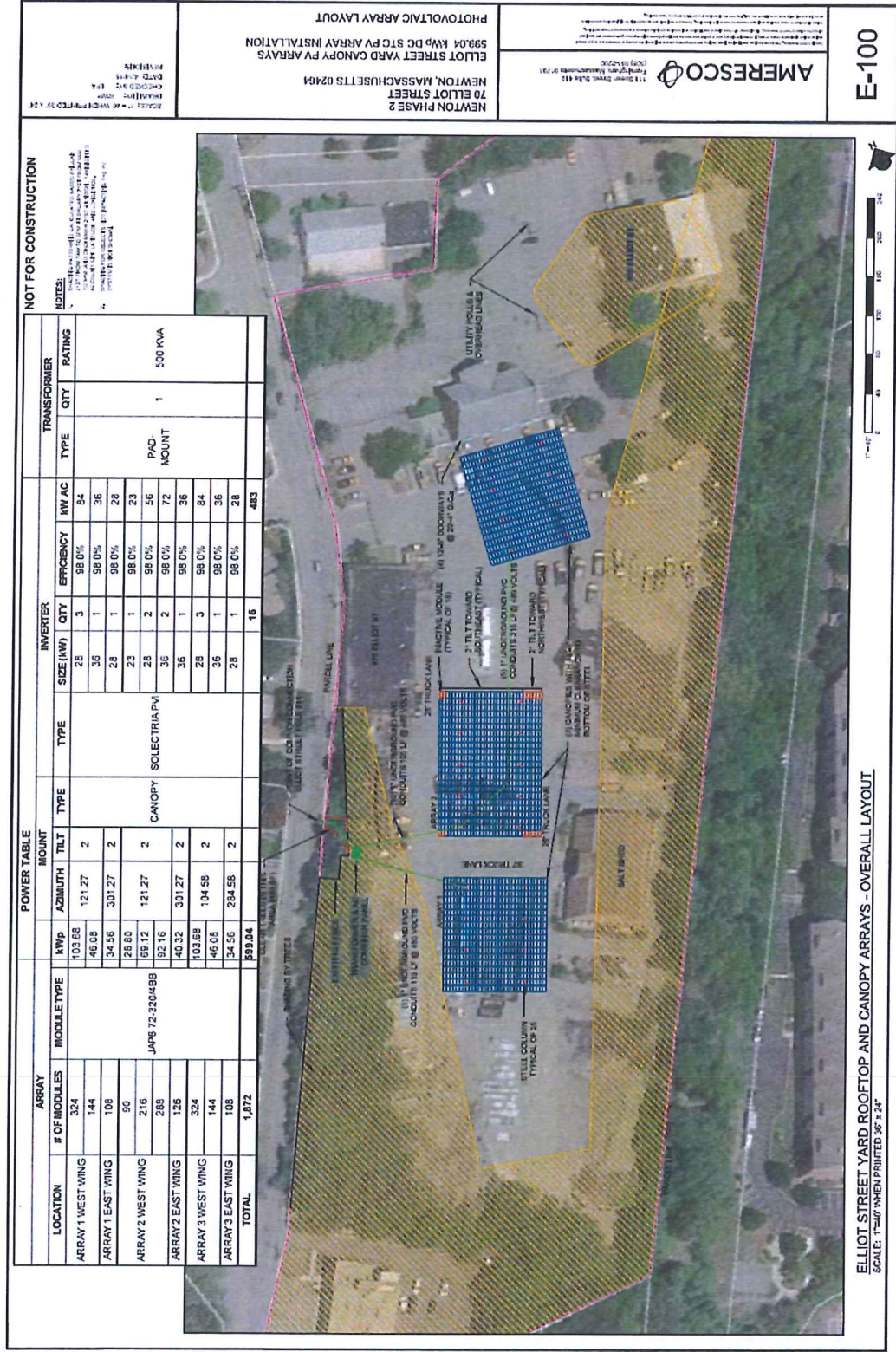
Name & Title

JAMES H. WALKER
Vice President, Solar PV

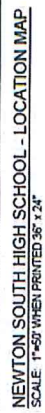
Exhibit A
General Depiction of Leased Premises

Exhibit A General Depiction of Leased Premises

Elliot Street DPW Yard Solar PV System Layout:



NOT FOR CONSTRUCTION



2

AMERESCO

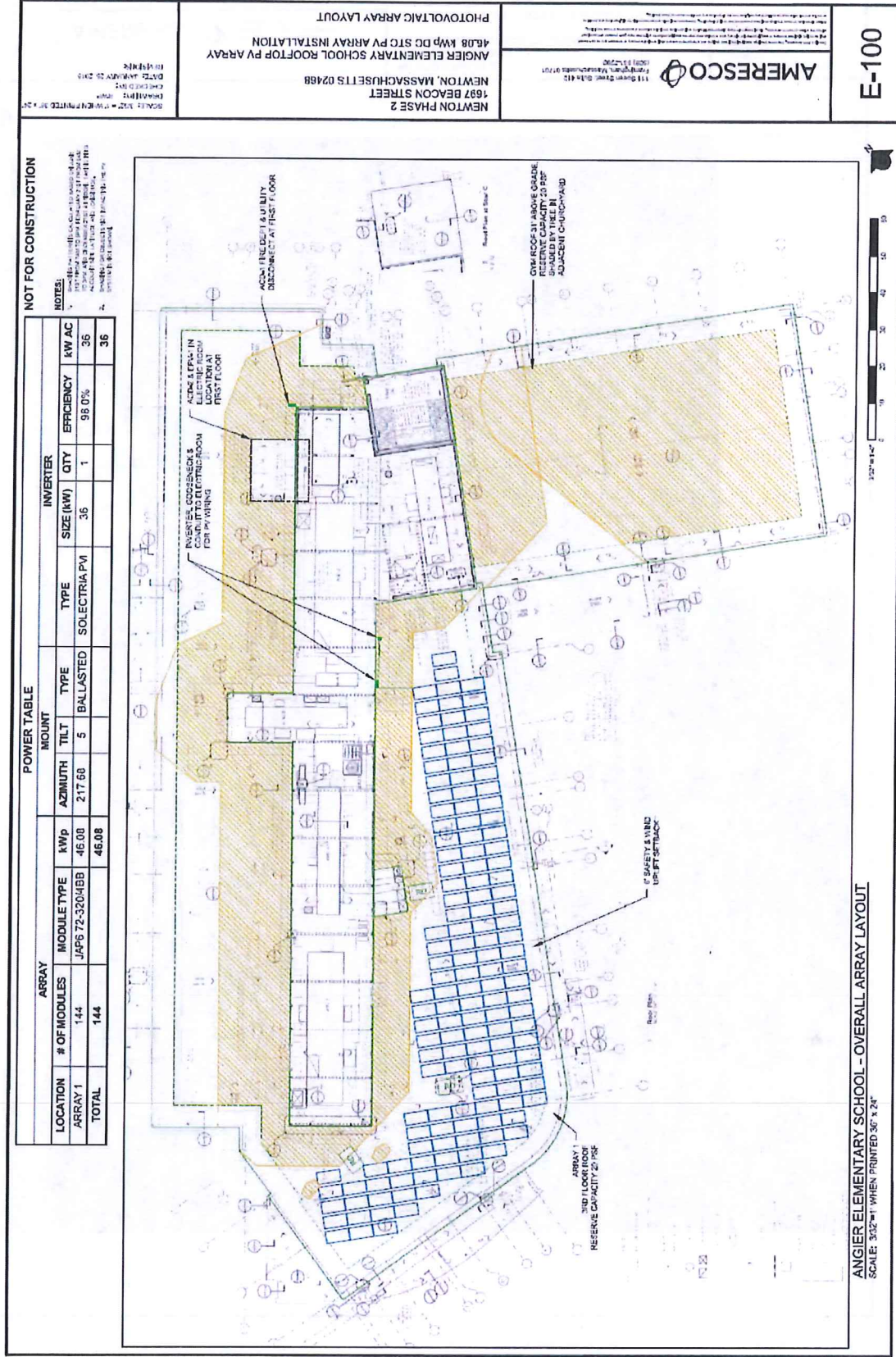
111 Spence St. Suite 410
Farmingdale, NY 11735-0001
516-255-1500

NEWTON PHASE 2
140 BRANDEIS ROAD
NEWTON, MASSACHUSETTS 02459
NEWTON SOUTH HIGH SCHOOL ROOFTOP PV ARRAY
302.08 kWp DC STC PV ARRAY INSTALLATION

PHOTOVOLTAIC ARRAY LOCATION MAP

SCALE: 1" = 50' WHEN PRINTED 36" x 24"
DRAWN BY: RWP
CHECKED BY:
DATE: MAY/02/2016
REVISIONS:
/ CORRECTED 1. FINAL 1.000000 000000

Angier Elementary School Solar PV System Layout:



NOT FOR CONSTRUCTION

PHOTOVOLTAIC ARRAY LAYOUT

OAK HILL MIDDLE SCHOOL ROOFTOP PV ARRAY INSTALLATION

**NEWTON PHASE 2
130 WHEELER ROAD
NEWTON, MASSACHUSETTS 02459**

AMERESCO
113 Salem Street, Suite 412
Lowell, MA 01850
(978) 451-1200

NOTES:

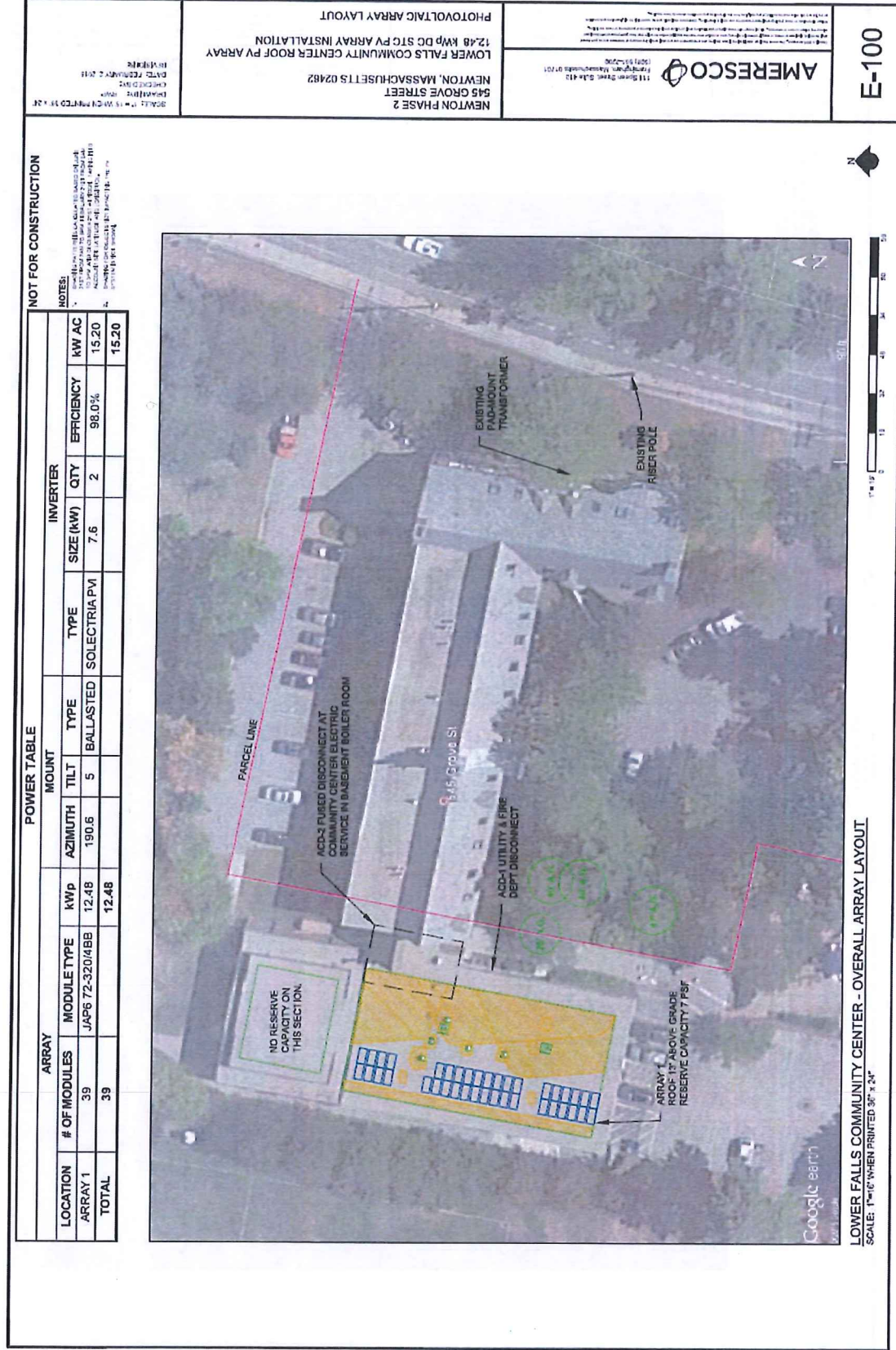
1. This plan shows the location of the proposed photovoltaic array installation on the roof of the building.
2. The array will be installed on the south-facing roof.
3. The array will be installed on the roof of the building.
4. The array will be installed on the roof of the building.

ARRAY			MOUNT			INVERTER			KW AC	EFFICIENCY	QTY
LOCATION	# OF MODULES	MODULE TYPE	KWP	AZIMUTH	TILT	TYPE	SIZE (KW)				
ARRAY 1	132	JAP6 72-3204BB	42.24	205.4	5	BALLASTED	HQ TS480-8k	8	4	98.0%	32
ARRAY 2	184	JAP6 72-3204BB	58.88	205.4	5	BALLASTED	HQ TS480-8k	8	5	98.0%	40
ARRAY 3	54	JAP6 72-3204BB	17.28	205.4	30	PITCHED ROOF	HQ TS480-8k	8	2	98.0%	16
ARRAY 4	54	JAP6 72-3204BB	17.28	205.4	30	PITCHED ROOF	HQ TS480-8k	8	2	98.0%	16
TOTAL	424		135.68								104

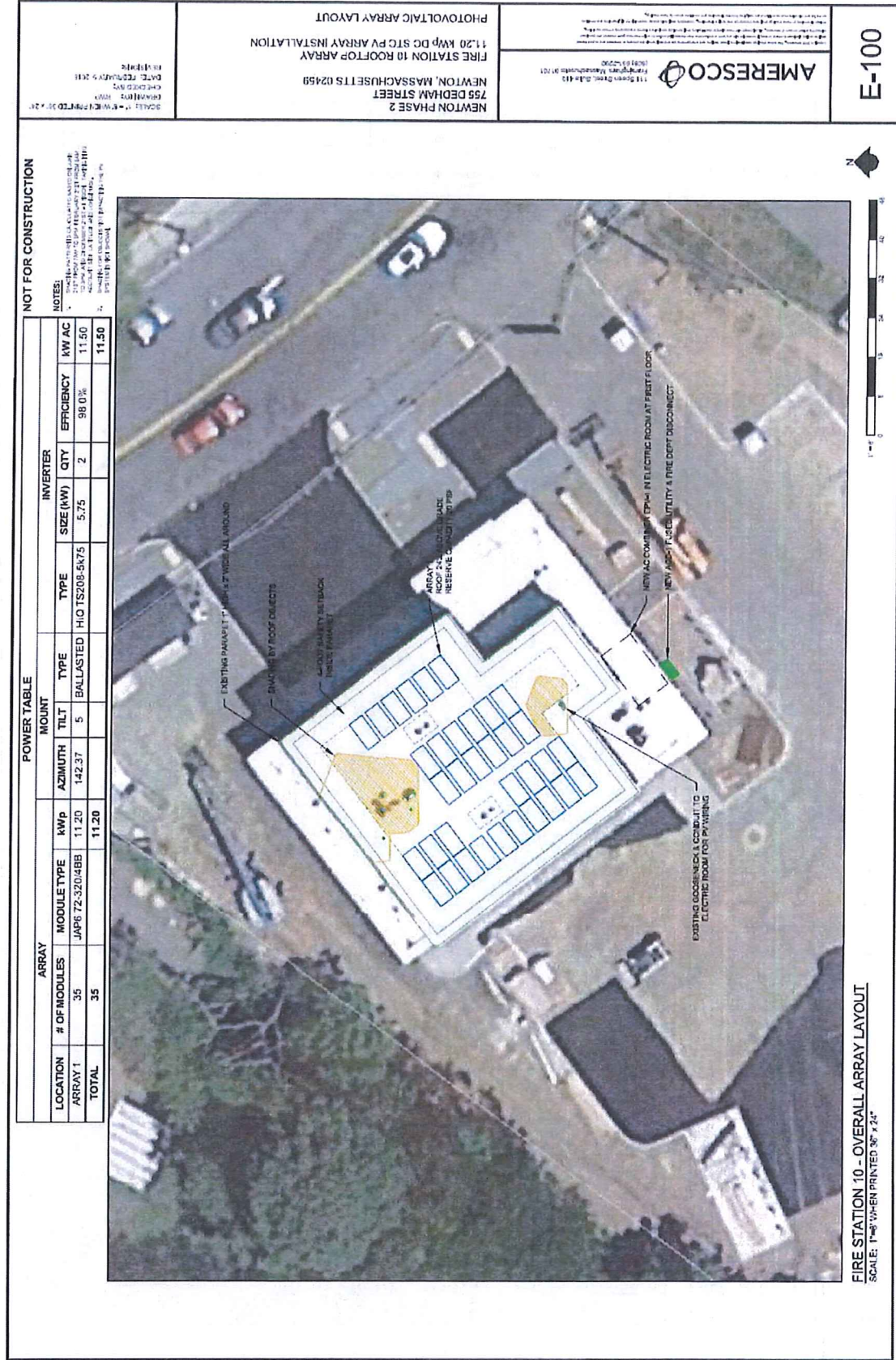
OAK HILL SCHOOL - OVERALL ARRAY LAYOUT

SCALE: 1"=20' WHEN PRINTED 36" x 24"

Lower Falls Community Center Solar PV System Layout:



Fire Station 10 Solar PV System Layout:



POWER TABLE

ARRAY		MOUNT		INVERTER							
LOCATION	# OF MODULES	MODULE TYPE	KWP	AZIMUTH	TILT	TYPE	SIZE (KW)	QTY	EFFICIENCY	KW AC	
ARRAY 1	182	JAP6 72-320/4BB	58.24	183.17	5	BALLASTED	HIQ TS208-5K75	5.75	7	98.0%	40.25
ARRAY 2	65	JAP6 72-320/4BB	20.80	183.17	5	BALLASTED	HIQ TS208-5K75	5.75	3	98.0%	17.25
TOTAL	247		79.04								57.50

PHOTOGRAPHIC ARRAY LAYOUT

BOWEN ELEMENTARY SCHOOL ROOFTOP PV ARRAY

79.04 KWP DC STC PV ARRAY INSTALLATION

NEWTON, MASSACHUSETTS 02459

NEWTON PHASE 2

280 CYPRESS STREET

AMERESCO

115 South Street, Suite 410

Newton, Massachusetts 02459

10/27/13-2013

FOR THE NEWTON SCHOOL DISTRICT

NOTES:

- 1. THIS PHOTOGRAPHIC ARRAY LAYOUT IS BASED ON THE INFORMATION PROVIDED BY THE NEWTON SCHOOL DISTRICT.
- 2. THE PHOTOGRAPHIC ARRAY LAYOUT IS BASED ON THE INFORMATION PROVIDED BY THE NEWTON SCHOOL DISTRICT.
- 3. THE PHOTOGRAPHIC ARRAY LAYOUT IS BASED ON THE INFORMATION PROVIDED BY THE NEWTON SCHOOL DISTRICT.
- 4. THE PHOTOGRAPHIC ARRAY LAYOUT IS BASED ON THE INFORMATION PROVIDED BY THE NEWTON SCHOOL DISTRICT.

NOT FOR CONSTRUCTION

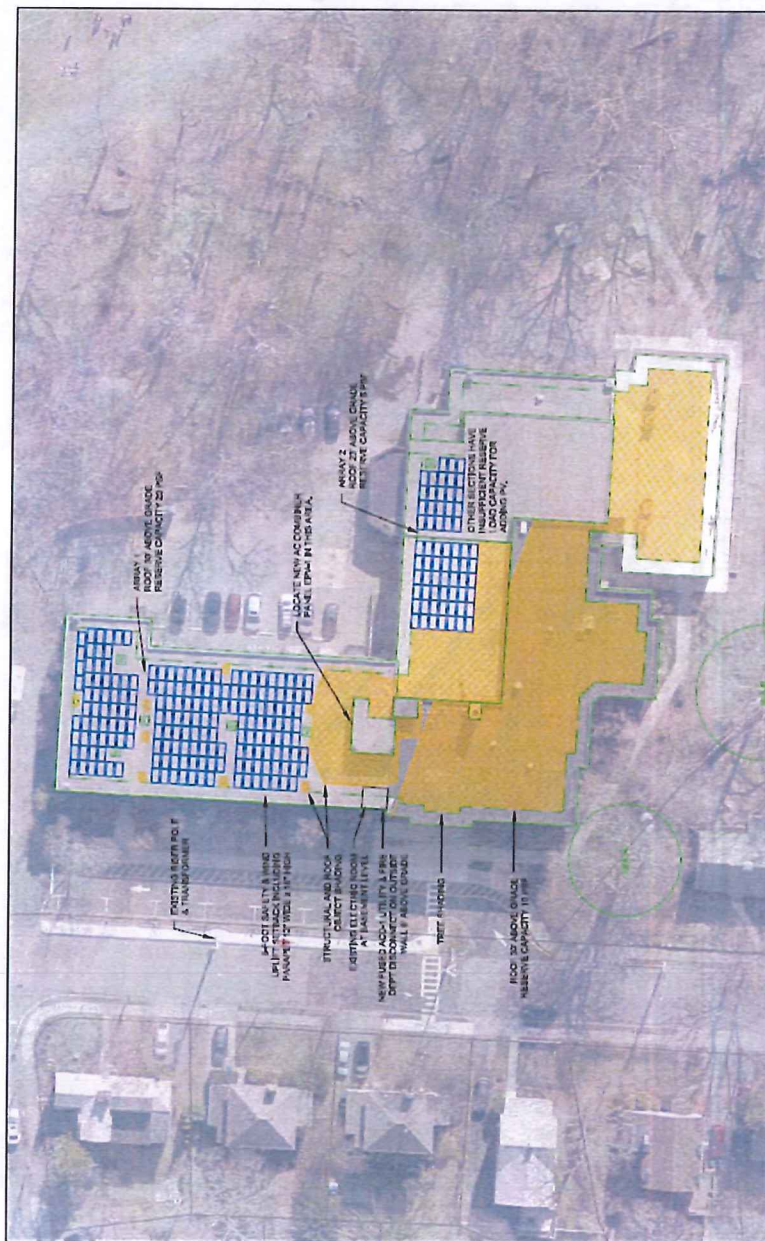
BOWEN ELEMENTARY SCHOOL - OVERALL ARRAY LAYOUT

SCALE: 1"=20' WHEN PRINTED 36" x 24"

POWER TABLE									
ARRAY			MOUNT			INVERTER			
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	SIZE (kW)	QTY	kW AC
ARRAY 1	182	JAP6 72-320/4BB	58.24	183.17	5	BALLASTED	HIQ TS208-5K75	7	40.25
ARRAY 2	65	JAP6 72-320/4BB	20.80	183.17	5	BALLASTED	HIQ TS208-5K75	3	17.25
TOTAL	247		79.04						57.50

NOT FOR CONSTRUCTION

NOTES:



BOWEN ELEMENTARY SCHOOL - OVERALL ARRAY LAYOUT
SCALE: 1"=20' WHEN PRINTED 30" x 24"

E-100

NEWTON PHASE 2
200 CYPRESS STREET
NEWTON, MASSACHUSETTS 02459
BOWEN ELEMENTARY SCHOOL ROOFTOP PV ARRAY
79.04 kWh DC STC PV ARRAY INSTALLATION
PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
111 Stoner Street, Suite 412
Framingham, Massachusetts 01701
(508) 875-5555

Exhibit B

RECORDING REQUESTED BY,
PREPARED BY AND WHEN RECORDED
RETURN TO:

(Space above this line for recorder's use only)

NOTICE OF LEASE

This Notice of Lease is made this _____, by and between City of Newton, Massachusetts ("Lessor") and [_____] a _____ company ("Lessee" and together with Lessor, the "Parties").

In accordance with the provisions of Massachusetts General Laws Chapter 183, Section 4, as amended, notice is hereby given of the following described lease:

Date of Lease: _____

Lessor: City of Newton, Massachusetts
1000 Commonwealth Avenue
Newton, MA 02459

Lessee: _____

Leased Premises: Certain space on the rooftop of the properties listed on Annex 1. A depiction of the Leased Premises is attached hereto as Annex 2.

Initial Term: From the date of the Lease (shown above) until 00:00 a.m. on the last day of the month in which the twentieth anniversary of the Commercial Operation Date (as defined in the Power Purchase Agreement dated _____ between Lessor and Lessee (the "PPA")) occurs.

Leasehold

Access Rights: The Leased Premises are leased to Lessee together with the following rights:

- a. Lessor hereby grants to Lessee the non-exclusive use of such additional space at each Property for the installation, operation and maintenance of utility lines, cables, conduits, transformers, wires, meters, monitoring equipment and other necessary equipment and appurtenances ("Cabling Space") wherever

located, whether between and among the floors of the buildings located on the Properties, the rooftop space, the Delivery Point, and all necessary electrical and other utility sources located within each building or on the Properties. The location of the Cabling Space shall be mutually agreed upon by the Parties.

b. Lessor hereby grants to Lessee non-exclusive rights of ingress and egress from all public right-of-ways over each Property to and from the respective Leased Premises and Cabling Space during normal business hours, and upon reasonable advance coordination with Lessor outside of normal business hours.

Ownership of
the System:

Lessee or Lessee's assigns, will at all times retain title to and be the legal and beneficial owner of the System, which will at all times retain the legal status of personal property of Lessee as defined under Article 9 of the Uniform Commercial Code. The System will not attach to or be deemed a part of, or a fixture to, the Leased Premises, notwithstanding the manner in which the System is or may be affixed to the real property of Lessor.

The term "System" means the solar electric generating facility installed at Lessor's property, including but not limited to the System Assets.

"System Assets" means each and all of the assets of which the System is comprised, including Lessee's solar energy panels, mounting systems, carports, tracking devices, inverters, integrators and other related equipment and components installed on Lessor's premises, electric lines and conduits required to connect such equipment to the Delivery Point and the LDC System (as such terms are defined in the Lease), protective and associated equipment, improvements, metering devices, and other tangible and intangible assets, permits, property rights and contract rights reasonably necessary for the construction, operation, and maintenance of the System.

[Signatures begin on following page]

Executed and effective as of the date first set forth above.

LESSOR: CITY OF NEWTON

By: _____
Name: _____
Title: _____

COMMONWEALTH OF MASSACHUSETTS

_____, ss.

On this ____ day of _____, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was a Massachusetts driver's license, to be the person whose name is signed on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose, as _____ of City of Newton.

Notary Public
My commission expires:

LESSEE:

BY:

By: _____
Name: _____
Title: _____

COMMONWEALTH OF MASSACHUSETTS

_____, ss.

On this ____ day of _____, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was a Massachusetts driver's license, to be the person whose name is signed on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose, as _____ of _____

Notary Public
My commission expires:

Annex 1 to Notice of Lease

DESCRIPTION OF LESSOR'S PROPERTIES

- (i) Newton South High School at 140 Brandeis Road
- (ii) Angier Elementary School at 1697 Beacon Street
- (iii) Oak Hill Middle School at 130 Wheeler Road
- (iv) Lower Falls Community Center at 545 Grove Street
- (v) Fire Station 10 at 755 Dedham Street
- (vi) Bowen Elementary School at 280 Cypress Street
- (vii) Department of Public Works at 70 Elliot Street

Annex 2 to Notice of Lease

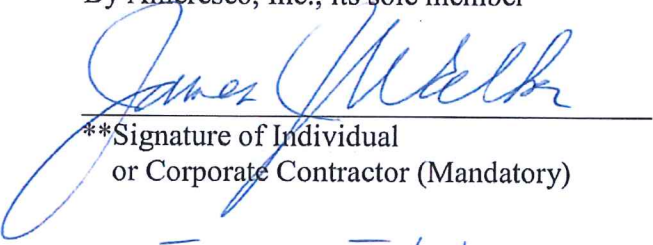
DEPICTION OF LEASED PREMISES

Exhibit C to Lease

TAX ATTESTATION

Pursuant to M.G.L. c. 62C, § 49A, the undersigned acting on behalf of Newton Municipal Solar LLC, certifies under the penalties of perjury that, to the best of the undersigned's knowledge and belief, Newton Municipal Solar LLC is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.*

Newton Municipal Solar LLC
By Ameresco, Inc., its sole member


**Signature of Individual
or Corporate Contractor (Mandatory)

81-2671097
*** Contractor's Social Security Number
(Voluntary) or Federal
Identification Number

By: JAMES J WALKER
Corporate Officer
(Mandatory, if applicable)

Date: 5/24/2016

* The provision in the Attestation relating to child support applies only when the Contractor is an individual.

** Approval of a contract or other agreement will not be granted unless the applicant signs this certification clause.

*** Your social security number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Lessees who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended. This request is made under the authority of GL c. 62C, § 49A.

Exhibit D

CERTIFICATE OF NON-COLLUSION

The undersigned certifies, under penalties of perjury, that this CONTRACT has been made and submitted in good faith and without collusion or fraud with any other person.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group of individuals.

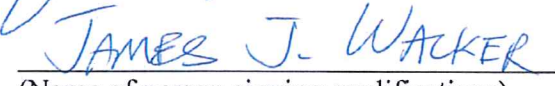
Lessee:

Newton Municipal Solar LLC

By: Ameresco, Inc., its sole member

By: 

(Signature)



(Name of person signing qualifications)



CITY OF NEWTON SOLAR PV-PHASE 3

JANUARY 2019

A photograph of a city street with cars and buildings, partially obscured by a blue geometric overlay.

**ZERVAS
ELEMENTARY
ROOFTOP**

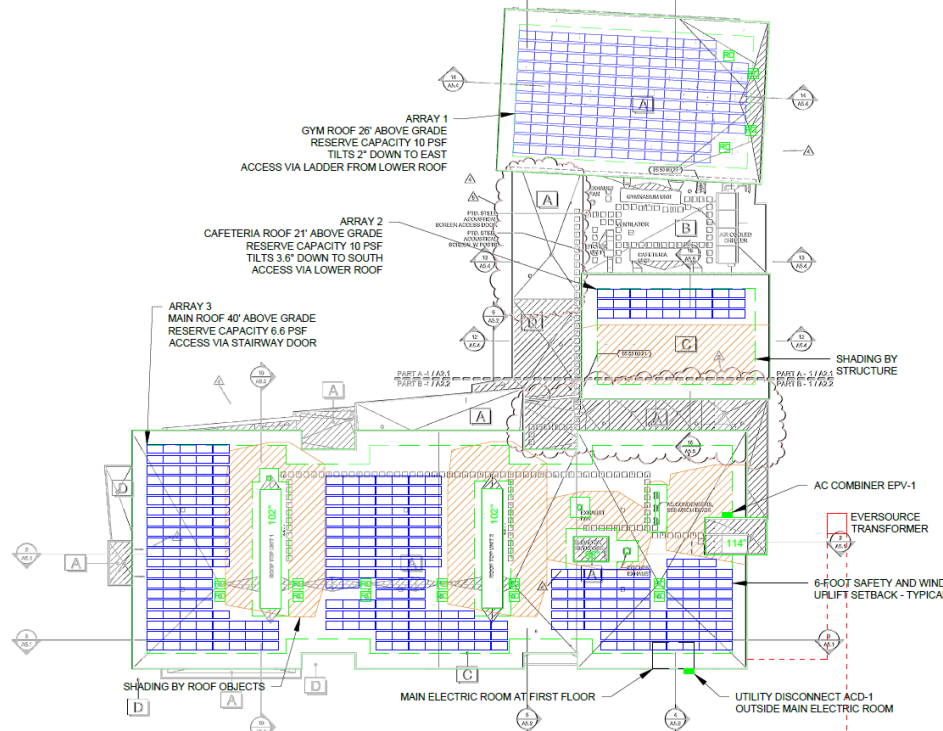
ARRAY			POWER TABLE			INVERTER				
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY
ARRAYS 1-3	490	JAM6(K)-72-370/PR	181.30	170	5	BALLASTED	SOLAREEDGE	100	1	98.5%
							SOLAREEDGE	66.6	1	98.5%
TOTAL	490		181.30						2	167

NOT FOR CONSTRUCTION

NOTES:

1. SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7AM TO 5PM, FEBRUARY 21ST FROM 8AM TO 5PM, AND DECEMBER 21ST AT NOON. THINGS INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
2. SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.

BEETHOVEN AVE



ZERVAS ELEMENTARY SCHOOL ROOFTOP - OVERALL ARRAY LAYOUT
SCALE: 1"=16' WHEN PRINTED 36" x 24"

CITY OF NEWTON, PHASE 3 SOLAR
50 BEETHOVEN AVENUE
NEWTON, MASSACHUSETTS 02468
ZERVAS ELEMENTARY SCHOOL ROOFTOP PV ARRAY
181.30 kWp DC PV ARRAY (166.6 kWAC)
PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
115 Beacon Street, Suite 400
Boston, MA 02116
(617) 661-1200

E-100

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F.A. DAY MIDDLE SCHOOL ROOFTOP

ARRAY		POWER TABLE			MOUNT		INVERTER				
		MODULE TYPE	KWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (KW)	QTY	EFFICIENCY	KW AC
LOCATION	# OF MODULES										
ARRAY 1	306	JAM72S01-370/PR	113.22	197	5	BALLASTED	SolarEdge	100	1	98.5%	100
ARRAY 2	190	JAM72S01-370/PR	70.3	197	5	BALLASTED	SolarEdge	66.6	1	98.5%	67
ARRAY 3	190	JAM72S01-370/PR	70.3	197	5	BALLASTED	SolarEdge	66.6	1	98.5%	67
TOTAL	686		253.82						3		233

NOT FOR CONSTRUCTION

- NOTES:
- SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST, 11:00 AM TO 1:00 PM, FEBRUARY 21ST FROM 9 AM TO 3 PM, AND DECEMBER 21ST AT NOON, TAKING INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
 - SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
 - GROUND SNOW LOAD = 45 PSF, BASIC WIND SPEED = 105 MPH, EXPOSURE TYPE C.

SCALE: 1" = 20' WHEN PRINTED 36" x 24"

DRAWN BY: SB

DATE: 02/26/2018

REVISIONS:

CITY OF NEWTON - PHASE 3 SOLAR

21 MINOT PLACE

NEWTON, MASSACHUSETTS 02460

F. A. DAY MIDDLE SCHOOL ROOFTOP PV ARRAY

253.82 kWp DC STC PV ARRAY (233 kW AC)

PHOTOVOLTAC ARRAY LAYOUT

111 Beacon Street, Suite #100
Framingham, Massachusetts 01701
(508) 881-0333

AMERESCO

E-100



F. A. DAY MIDDLE SCHOOL - OVERALL ARRAY LAYOUT
SCALE: 1"=20' WHEN PRINTED 36" x 24"

EDUCATION CENTER ROOFTOP

ARRAY				POWER TABLE			INVERTER				
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC
ARRAYS 1-4	218	JAM6(K)-72-370/PR	80.66	VARIES	5	BALLASTED	SolarEdge	66.6	1	98.0%	66.6
TOTAL	218		80.66						1		66.6

NOT FOR CONSTRUCTION

- NOTES:
- SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7:30AM TO 4:30PM, FEBRUARY 21ST FROM 9AM TO 3PM, AND DECEMBER 21ST AT NOON. THINGS INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
 - SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
 - GROUND SNOW LOAD = 40 PSF, BASIC WIND SPEED = 105 MPH, EXPOSURE TYPE C.

SCALE: 1"=16' WHEN PRINTED 36" x 24"
 CHECKED BY: [Signature]
 DATE: 01/27/2018
 REVISION:

CITY OF NEWTON - PHASE 3 SOLAR
 111 South Street
 NEWTON, MASSACHUSETTS 02460
 EDUCATION CENTER ROOFTOP PV ARRAY
 80.66 kWp DC STC PV ARRAY (66.6 kW AC)
 PHOTOVOLTAIC ARRAY LAYOUT

AMERESCO
 111 South Street, Suite 405
 Framingham, MA 01901
 (508) 861-2200

E-100



EDUCATION CENTER - OVERALL ARRAY LAYOUT
 SCALE: 1"=16' WHEN PRINTED 36" x 24"

FIRE STATION 3 ROOFTOP

POWER TABLE											
ARRAY				MOUNT			INVERTER				
LOCATION	# OF MODULES	MODULE TYPE	kWp	AZIMUTH	TILT	TYPE	TYPE	SIZE (kW)	QTY	EFFICIENCY	kW AC
ARRAYS 1 & 2	171	JAM6(K)-72-370/PR	63.27	VARIES	5	BALLASTED	SolarEdge	66.6	1	98.0%	67
TOTAL	171		63.27						1		67

NOT FOR CONSTRUCTION

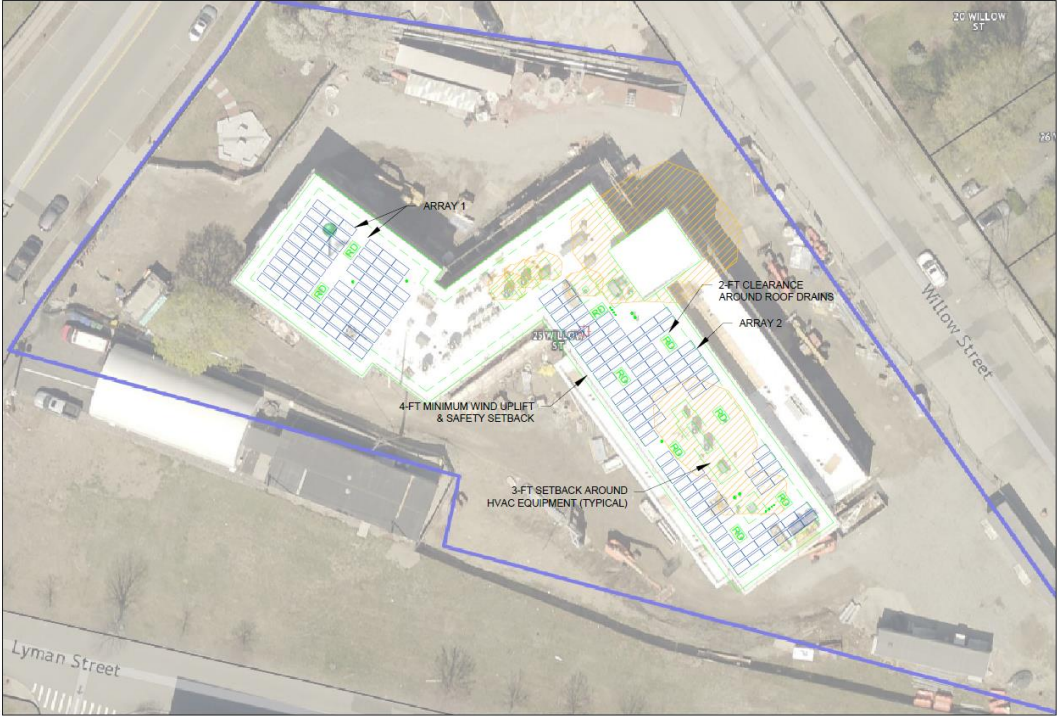
- NOTES:
- SHADING PATTERN IS CALCULATED BASED ON JUNE 21ST FROM 7:00AM TO 4:30PM, FEBRUARY 21ST FROM 9AM TO 3PM, AND DECEMBER 21ST AT NOON, TAKING INTO ACCOUNT SITE LATITUDE AND LONGITUDE.
 - SHADING FOR OBJECTS NOT IMPACTING THE PV SYSTEM IS NOT SHOWN.
 - GROUND SNOW LOAD = 40 PSF, BASIC WIND SPEED = 105 MPH, EXPOSURE TYPE C.

SCALE: 3/8"
DRAWN BY: JS
CHECKED BY: JLA
DATE: 02/28/2018
REVISIONS:

CITY OF NEWTON, PHASE 3 SOLAR
118A CENTRE STREET
NEWTON, MASSACHUSETTS 02459
FIRE STATION #3 ROOFTOP PV ARRAY
63.27 kWp DC STC PV ARRAY (66.6 kW AC)
PHOTOVOLTAC ARRAY LAYOUT

AMERESCO
111 Salem Street, Suite #100
Framingham, MA 01701
(508) 881-2333

E-100



FIRE STATION #3 AND HEADQUARTERS - OVERALL ARRAY LAYOUT

SCALE: 1"=16' WHEN PRINTED 36" x 24"



NEWTON NORTH HS LOWELL AVE. CANOPY





NEWTON NORTH HS WALNUT ST. CANOPY



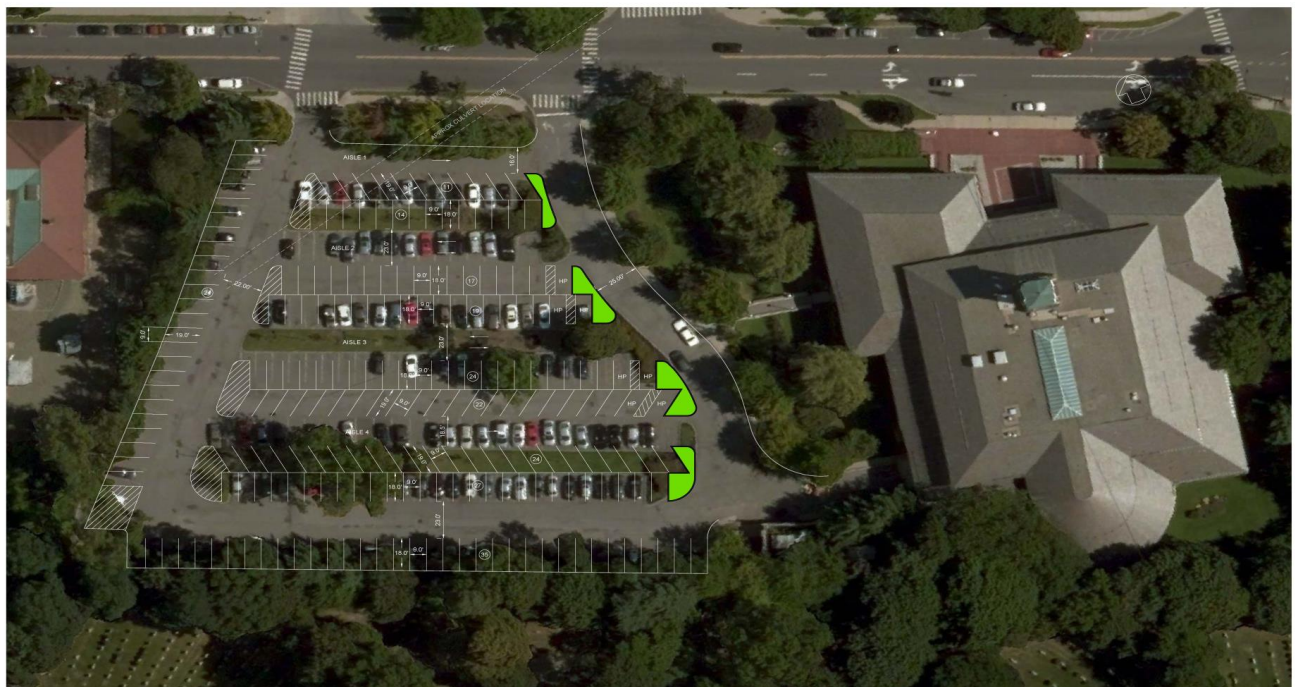
LIBRARY LOT CANOPY

AMERESCO 

17

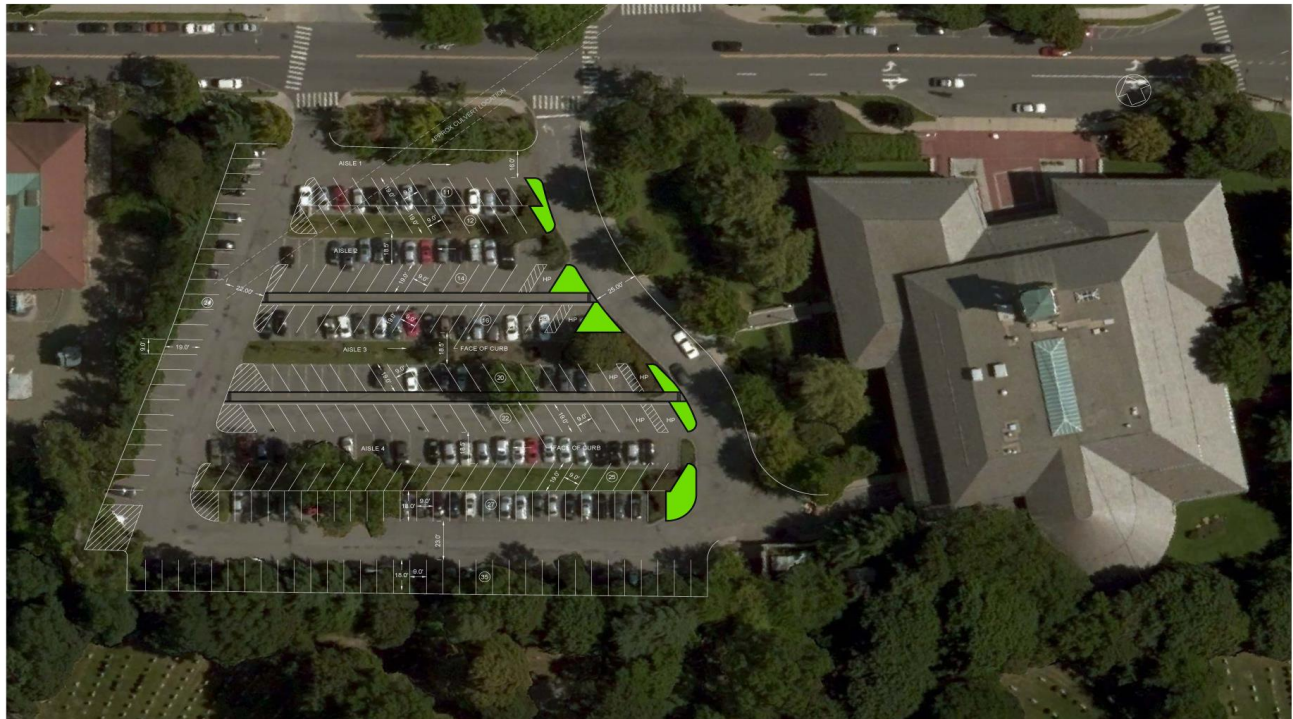
AMERESCO 

LIBRARY WITH NO WALKWAYS +36 SPACES



0 20 40 60 80 100
SCALE: 1" = 20'

LIBRARY WITH 2 WALKWAYS +24 SPACES



0 50 100
SCALE: 1" = 20'

LIBRARY CANOPIES





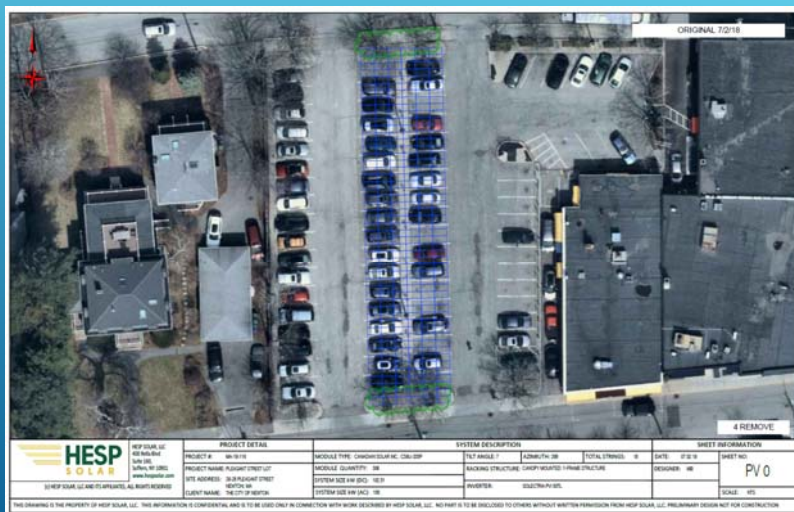




THANK YOU

Steve McDonough
 Senior Development Manager
 111 Speen Street, Suite 410
 Framingham, MA 01701
 Ph: 413-209-1608
 Email: smcdonough@Ameresco.com

Pleasant Street Lot (Before)

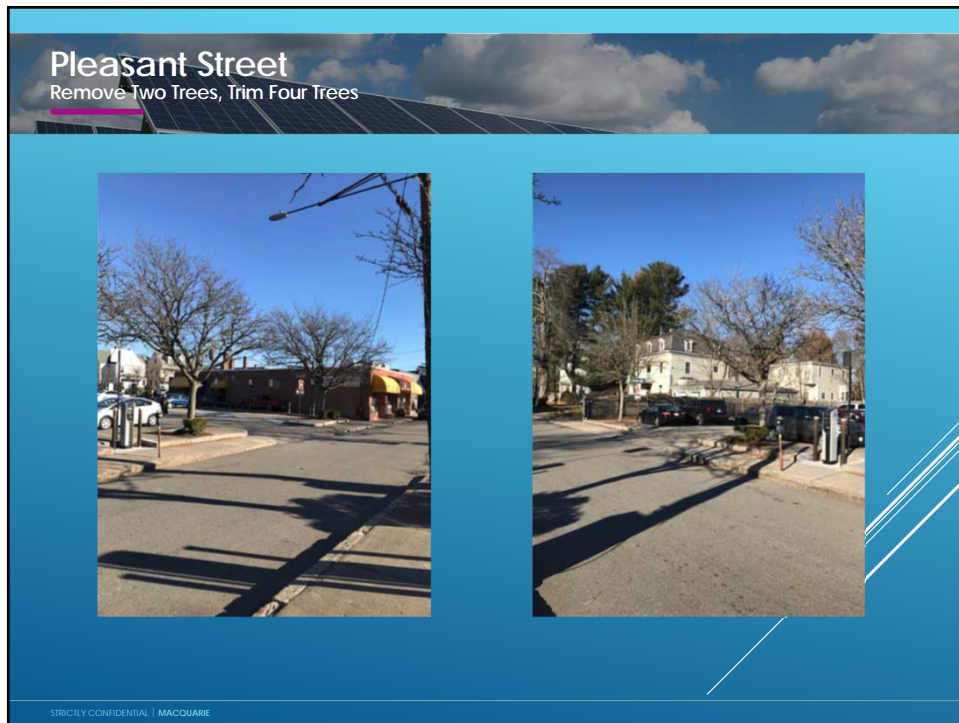


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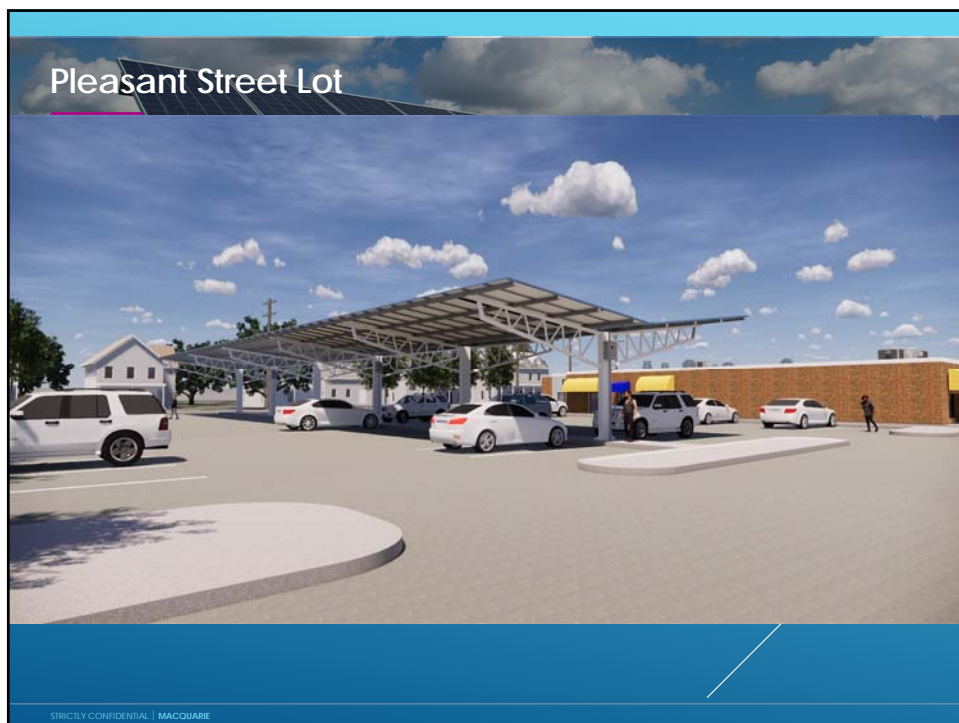
Pleasant Street Lot (After)



2



3



4

Pleasant Street



5

CADMUS

5

Pleasant Street



6

CADMUS

6



Newton Solar

Macquarie and HESP Solar
January 2019

STRICTLY CONFIDENTIAL

Angier Elementary School



Cabot School



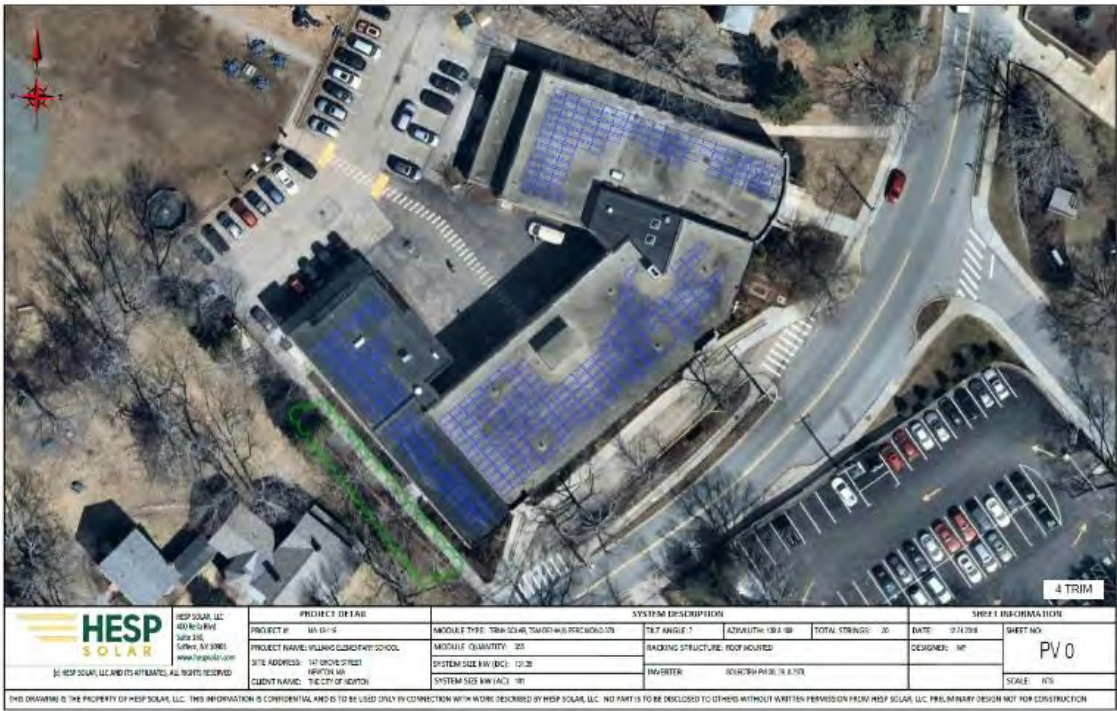
STRICTLY CONFIDENTIAL | MACQUARIE

Carr School



STRICTLY CONFIDENTIAL | MACQUARIE

Williams Elementary School



STRICTLY CONFIDENTIAL | MACQUARIE

Ed Center Parking Lot



STRICTLY CONFIDENTIAL | MACQUARIE

Ed Center Parking Lot



Ed Center Parking Lot



Pleasant Street Lot (Before)



STRICTLY CONFIDENTIAL | MACQUARIE

Pleasant Street Lot (After)



STRICTLY CONFIDENTIAL | MACQUARIE

Pleasant Street Lot



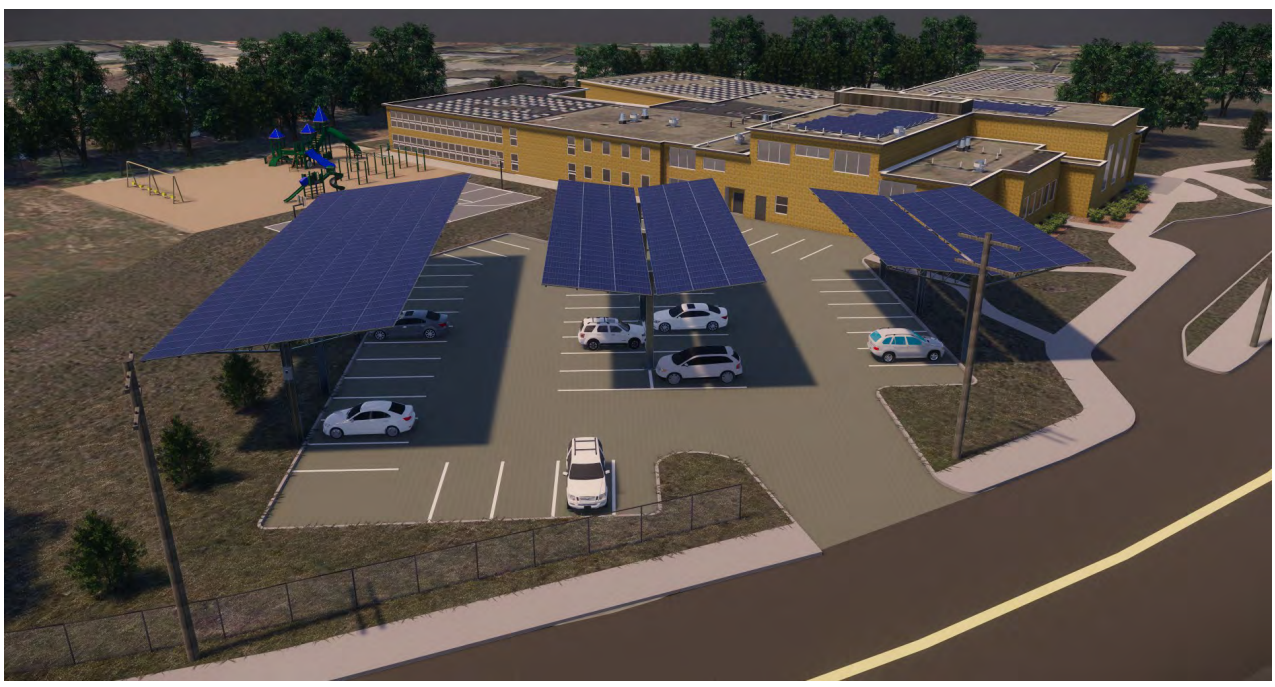
Pleasant Street Lot



Memorial Spaulding



Memorial Spaulding



Memorial Spaulding



STRICTLY CONFIDENTIAL | MACQUARIE

3

Mason Rice Elementary School Parking Lot (Before)



STRICTLY CONFIDENTIAL | MACQUARIE

3

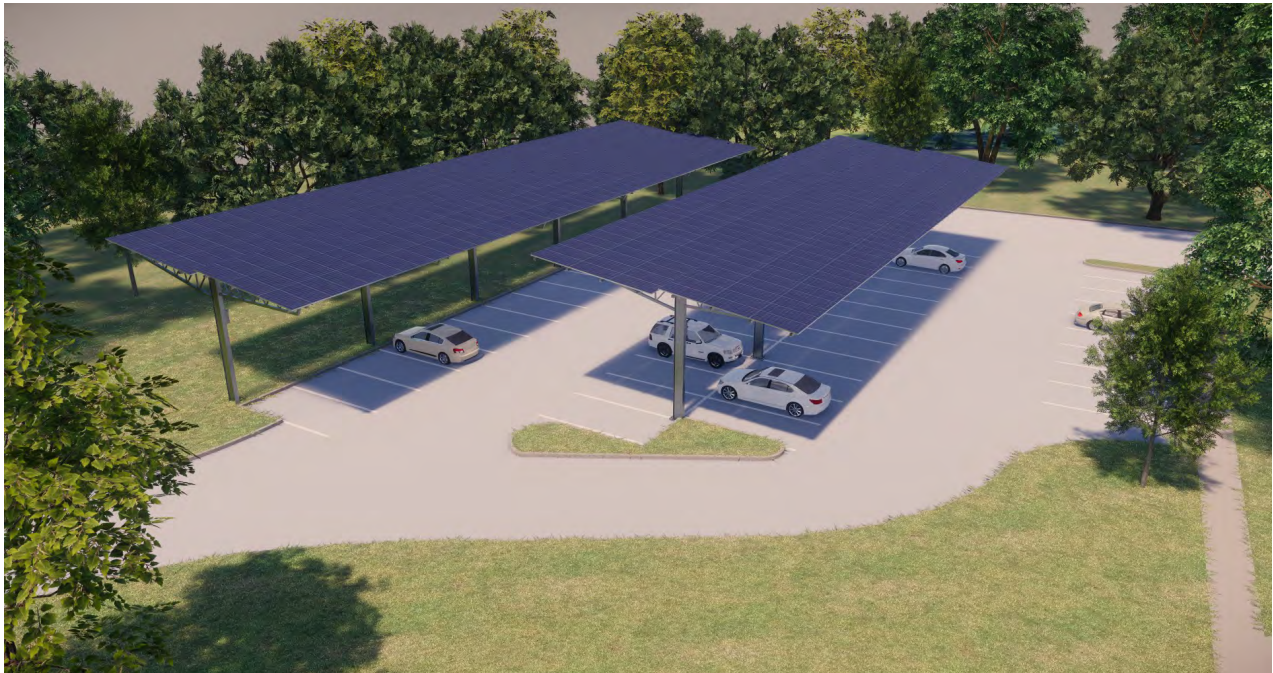
Mason Rice Elementary School Parking Lot (After)



STRICTLY CONFIDENTIAL | MACQUARIE

3

Mason Rice Elementary School Parking Lot



STRICTLY CONFIDENTIAL | MACQUARIE

3

Mason Rice Elementary School Parking Lot



Oak Hill Middle School Parking Lot (Before)



Oak Hill Middle School Parking Lot (After)



Oak Hill Middle School Parking Lot

TO BE UPDATED



STRICTLY CONFIDENTIAL | MACQUARIE

3

Oak Hill Middle School Parking Lot

TO BE UPDATED



STRICTLY CONFIDENTIAL | MACQUARIE

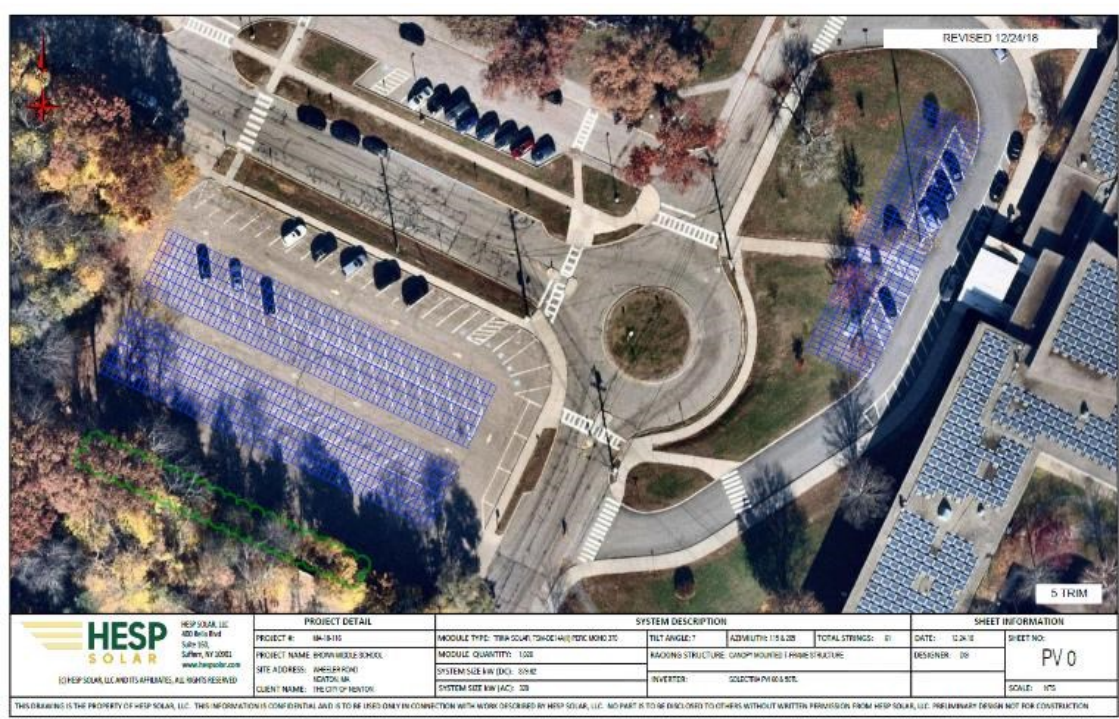
3

Brown Middle School Parking Lot (Before)



STRICTLY CONFIDENTIAL | MACQUARIE

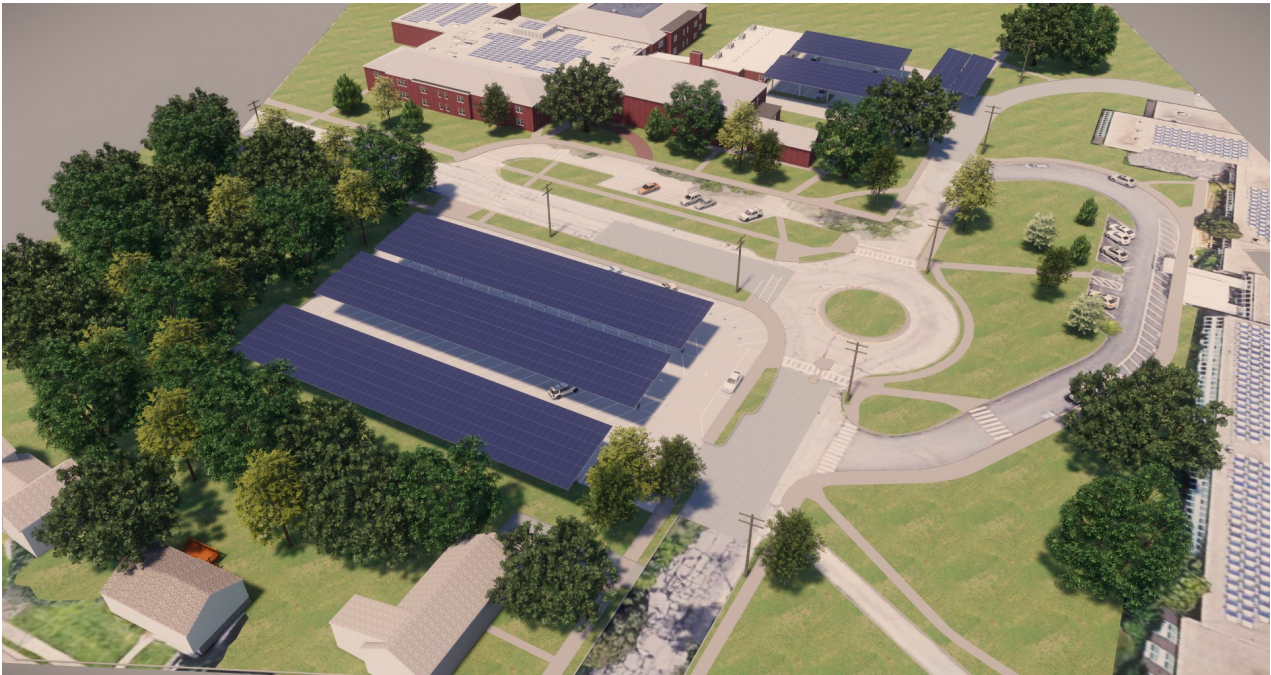
Brown Middle School Parking Lot (After)



STRICTLY CONFIDENTIAL | MACQUARIE

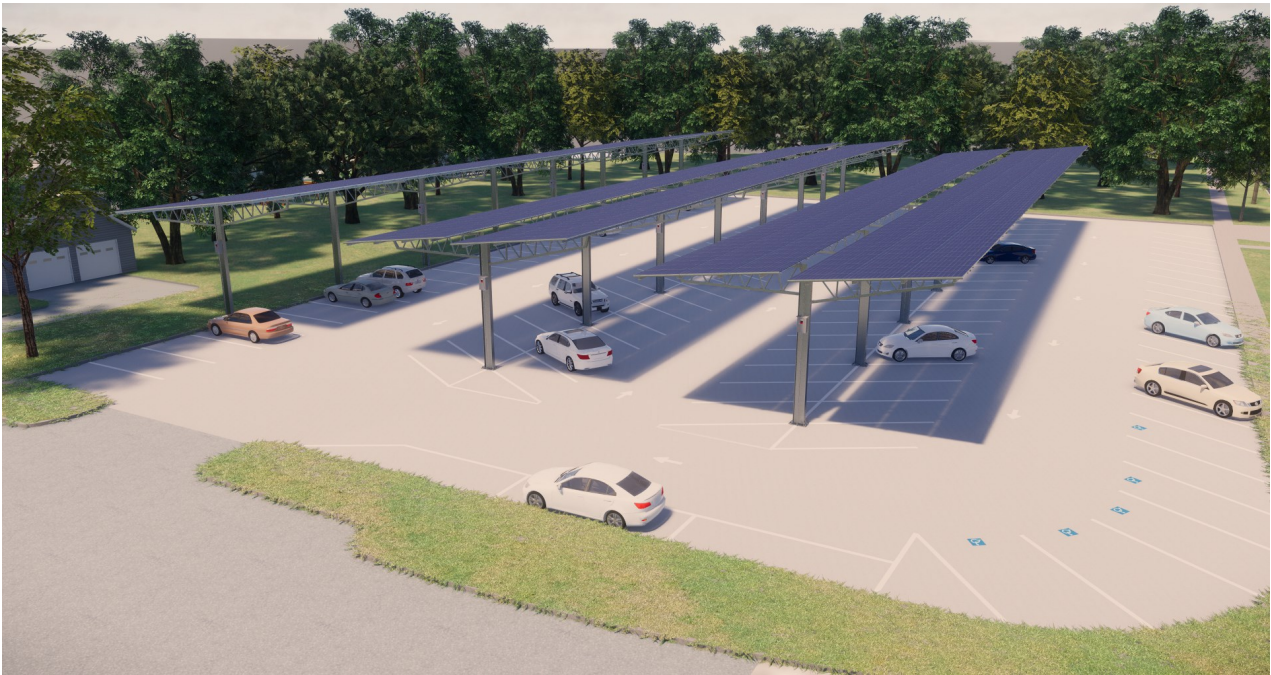
Brown Middle School Parking Lot

TO BE UPDATED



Brown Middle School Parking Lot

TO BE UPDATED



Brown Middle School Parking Lot

TO BE UPDATED



STRICTLY CONFIDENTIAL | MACQUARIE

3

Auburndale Cove (Before)



STRICTLY CONFIDENTIAL | MACQUARIE

3

Auburndale Cove (After)



STRICTLY CONFIDENTIAL | MACQUARIE

Auburndale Cove



Auburndale Cove



31

STRICTLY CONFIDENTIAL | MACQUARIE

Angier Elementary School

Trim One Tree



STRICTLY CONFIDENTIAL | MACQUARIE

Williams Elementary School

Trim Four Trees



STRICTLY CONFIDENTIAL | MACQUARIE

3

Mason Rice

Remove Two Trees, Trim One Tree



STRICTLY CONFIDENTIAL | MACQUARIE

3

Pleasant Street

Remove Two Trees, Trim Four Trees



STRICTLY CONFIDENTIAL | MACQUARIE

3

Oak Hill

Redesigning to Avoid Removing One Tree



STRICTLY CONFIDENTIAL | MACQUARIE

3

Memorial Spaulding

Remove One Tree



Brown Middle School

Remove One Tree



Newton Free Library**Board of Trustees Resolution on Solar Panel Project for the Library Parking Lot****As Approved – December 19, 2018**

The Trustees of the Newton Free Library are supportive of the City's plans to add solar power generation to the City's infrastructure. We recognize the potential gain to the City from reduced energy costs, as well as the important benefits to the environment of reducing fossil fuel use. For those reasons we approve further exploration of installing solar panel canopies in the Library parking lot, with the understanding that the Library Board of Trustees will have to formally approve final plans once detailed issues, including the following, have been addressed to the Trustees' satisfaction:

- (1) Specific tree-planting and landscaping plans that compensate for the removal of existing trees and shrubs, and that enhance the overall aesthetic of the Library lot;
- (2) Design plans for the parking lot that add parking spaces and generally improve parking lot operation, considering the Library's high usage by seniors and families with children;
- (3) Design of the canopies themselves, including aesthetics, night-lighting and rain/snow management;
- (4) Construction management plans and timing, their impact on parking and Library access during installation, and viable plans for mitigating that impact;
- (5) Economic assessment of the impact on the Library.