



# Milton

## Consolidated Facilities Department

William F. Ritchie, CPE, CFA  
Director of Consolidated Facilities  
May 2012

# CURRENT CONSOLIDATED FACILITIES OVERSIGHT

Number of Town and School Facilities	22
Estimated Gross Square Feet of C.F.D.	863,238+
Estimated Value of Facilities	\$175,000,000
<u>Total</u> Staff oversight Schools/Town	April 2, 2012 33
(Includes) -Consolidated Facilities Staff	6
(Includes) – School Facilities Staff	27
Contract Services/Vendors	25
Cleaning Contracts (Town Hall, Main Library and Senior Center)	1

Milton Consolidated Facilities  
 Date Created: 2/29/2012 10:46AM

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 Printed on: 2/29/2012

<b>Work Order ID: 112</b>				<b>Completion Date:</b>		
<b>Description</b>	case of paper to copy area 2nd Fl.					
<b>Location</b>	Town Hall	<b>Building</b>				
<b>Area</b>	Office	<b>Priority</b>	Low			
<b>Area Number</b>		<b>Craft</b>	Custodial			
<b>Custom Category</b>		<b>Type</b>				
<b>Status</b>	Void	<b>Estimated Hour</b>	0.00			
<b>Assigned To</b>	Colligan, Diane	<b>Requester</b>	Bill Ritchie 617-898-4930			
<b>Estimated Start</b>	2/29/2012	<b>Request Date</b>	2/29/2012			
<b>Est. Completion Date</b>		<b>Req. Completion</b>				
<b>Budget Code</b>		<b>Purpose Code</b>	Other			
<b>Project Code</b>		<b>Project Description</b>				
<b>Equip Item No.</b>		<b>Equip Desc</b>				
<b>Notes</b>						
<b>Purchases</b>		<b>To Date: \$0.00</b>				
<b>Date</b>	<b>Inv/Ref</b>	<b>Description</b>	<b>Supplier</b>	<b>Pool</b>	<b>Qty</b>	<b>Cost Each</b>
<b>Labor</b>		<b>To Date: h</b>				
<b>Date</b>	<b>Name</b>				<b>Hours</b>	

 Technician Name  
 www.schoolde.com MaintenanceDirect

Date

Confirmation

 Date  
 Printed by Diane Colligan

EXAMPLE OF CURRENT WORK ORDER

CUSTODIAL CLEANING	COMPARISON AREA/ PER. CUST. (SF)
MILTON PUBLIC SCHOOLS	28,000
WELLESLEY TOTAL DISTRICT	25,000
HAMILTON	28,000
NORTHBRIDGE	37,000
WESTFIELD HIGH SCHOOL	22,000
PEMBROKE HIGH SCHOOL	41,000
CANTON HIGH SCHOOL	42,000
NEWTON ELEMENTARY SCHOOLS	23,356
NEWTON MIDDLE SCHOOLS	26,590
NEWTON HIGH SCHOOLS	32,500
BLUE HILLS REGIONAL SCHOOL	48,847
<b>WESTBOROUGH</b>	<b>30,000</b>

## National Guidelines for Custodial Cleaning

- Based on information from the **National Custodial Staffing Guidelines** and the **International Sanitary Supply Association (ISSA)** a five-tiered system was developed to determine what the cleaning expectation of one full time custodian during an eight hour shift.
- 
- **Assumptions:** These cleaning recommendations do not take into account for two hours of cafeteria cleaning, errands, deliveries, function setup, sidewalk snow removal, personal breaks and other normal school distractions. Based on these assumptions, there would be a reduction of 2.5 hours of productive cleaning for every daytime custodian (8 staff or 20 hours) and 1 hour reduction in productive cleaning for every evening custodian (18 staff or 18 hours).
- At a minimum, 38 hours of productive cleaning would be lost per day or a total of 5 staff. Now, the average cleaning per S.F per custodian would increase to about 32,000 SF.
- **Level one cleaning:** Results in a **spotless building** and is usually found in a hospital and hotel setting. It also assumes that the custodian has proper equipment, supplies and specialized training. Cleaning capacity at this level is approximately **14,000 square feet** for an eight hour shift.
- **Level two cleaning:** Results in an **above average** standard and is usually only performed in the kitchen and rest room areas. Hallways would be routinely buffed. Cleaning capacity at this level is approximately **23,000 square feet** per an eight hour shift.
- **Most schools are at Level Three Cleaning: Results in an acceptable cleaning practice for most schools. Not every area of the building would shine but the educational space is clean, well kept and restrooms sanitized. Cleaning capacity at this level is approximately 33,000 square feet per eight hour shift.**
- **Level Four Cleaning:** Results in a **not so clean** educational space. Classrooms are only cleaned every other day, carpets every third or fourth day, major mopping, buffing and dusting only takes place three times per year. This level of cleaning would not be accepted in the industry. A custodian at this level could clean approximately **50,000 square feet** of space per eight hour shift.
- **Level Five Cleaning:** Results in an **unhealthy** education space. Trash removal, minor vacuuming, mopping and bathroom cleaning may only take place once per week. This custodian can clean up to **80,000 square feet** of educational space.
- *Based on the information and assumptions presented I can personally say that our custodians are doing a good job in maintaining our School Facilities. Our floors continue to be washed, buffed, waxed and the general upkeep of most of our school buildings are in an above average condition and in good shape.*

## **GREEN COMMUNITY AND NSTAR GRANT - ENERGY EFFICIENCY PROJECTS**

**AWARDED \$ 117,000 GREEN COMMUNITIES FUNDING**

**AWARDED AN ADDITIONAL \$20,000 NSTAR GRANTS**

**PROJECTED YEARLY SAVINGS COMBINED PROJECTS \$28,800**

### **TOWN HALL**

**NEW EXTERIOR DOORS**

**NEW LED LIGHT BULBS**

**NEW INTERIOR LIGHTING AND OCCUPANCY SENSORS (ON GOING)**

**NEW BOILER CONTROLS**

### **POLICE STATION**

**NEW INSULATED GARAGE DOOR**

**NEW BOILER CONTROLS**

**NEW LED LIGHTING**

### **TOWN LIBRARY**

**NEW LED LIGHTING**

### **PIERCE MIDDLE SCHOOL**

**NEW HALLWAY LIGHTING**

### **COUNCIL ON AGING**

**NEW ROOF VENTS (SOLAR POWERED) (PROPOSED)**

### **DPW**

**NEW (VFD) VARIABLE FREQUENCY DRIVES PUMP STATIONS**

### **TOWN WIDE**

**CENTRAL AVE/MILTON VILLAGE- NEW RETROFIT LED LIGHTING**

# **ON GOING ENERGY CONSERVATION MEASURES**

- **We are currently working with a third party energy consultant to investigate additional energy options through out the Town.**
- **Additional indoor/outdoor lighting retrofits, such as LED interior and exterior parking lot fixtures**
- **Variable speed drives & motors on boilers**
- **Upgrades to energy management systems**



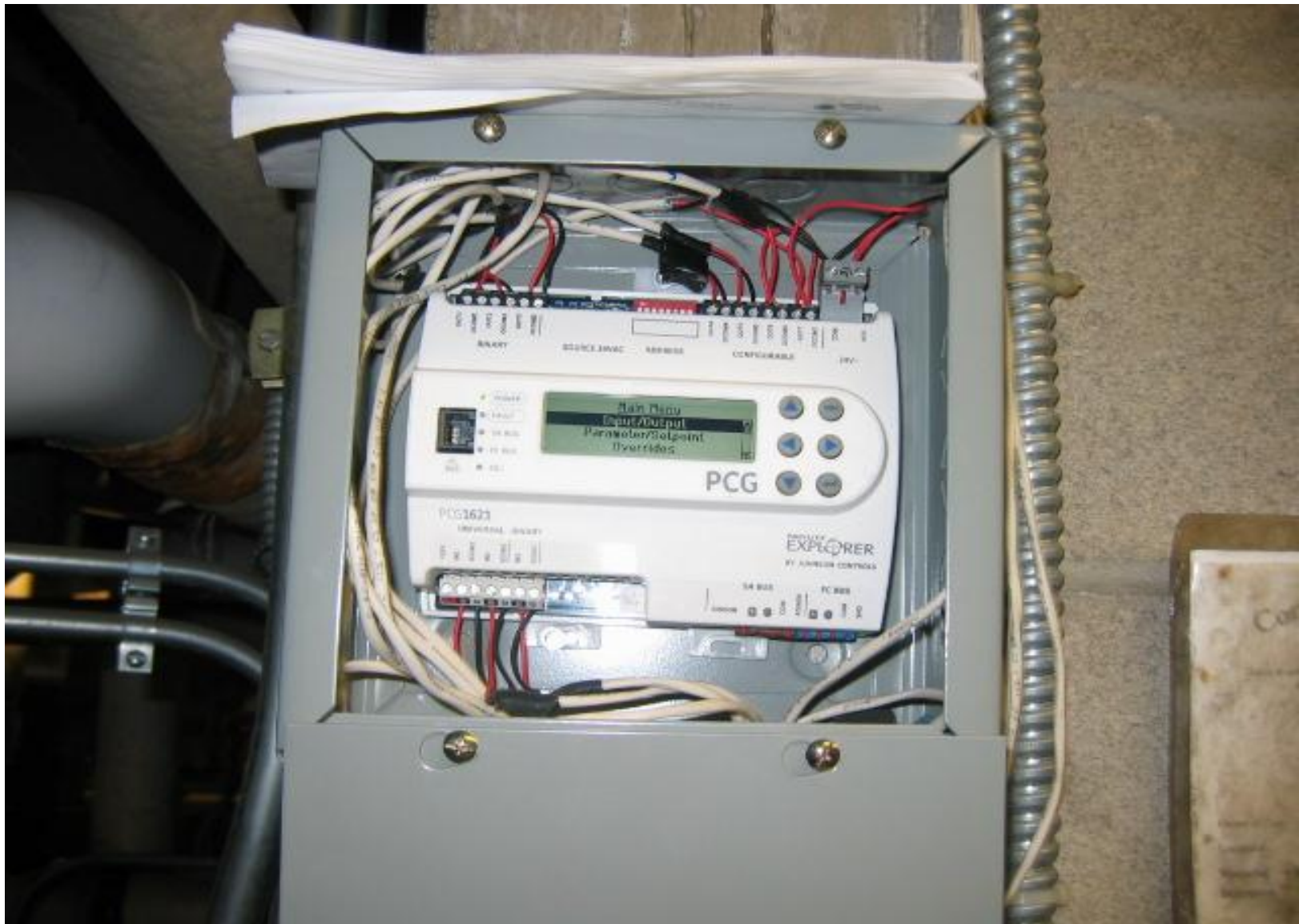
**NEW ENERGY EFFICIENT DOORS AT TOWN HALL (GREEN COMMUNITY GRANT)**





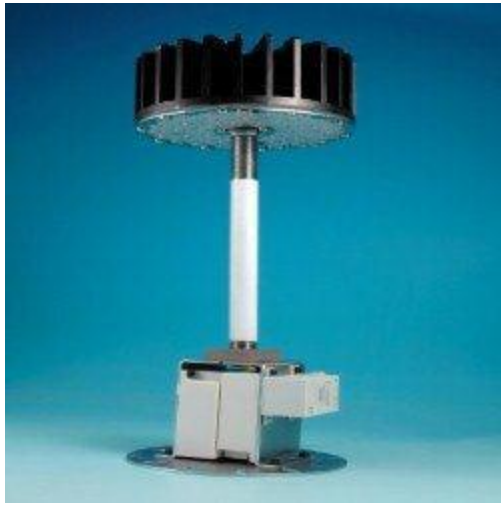
**NEW GARAGE DOORS AT POLICE STATION**





**NEW BOILER CONTROLS AT TOWN HALL AND POLICE STATION ESTIMATED SAVINGS \$3,600 PER YEAR**





COST OF LIGHTS/FIXTURES	\$19,000
SAVINGS PER YEAR	\$3,000
NSTAR GRANT MONEY	\$5,400



# ENERGY CONSERVATION MEASURES ( UTILITY TRACKING SCHOOLS)

## GAS & ELECTRIC ALL LOCATIONS

ELECTRIC							
		FY12	FY11	FY10	FY09	FY08	FY07
HIGH SCHOOL	-29%	1,169,150	1,647,520	1,774,436	1,852,865	2,484,320	2,032,893
PIERCE	-24%	761,164	1,007,032	1,067,922	1,178,586	1,267,054	1,086,312
COLLICOT	-22%	324,030	414,209	433,111	528,270	604,180	220,895
CUNNINGHAM	-22%	324,660	415,901	433,958	528,270	604,180	220,895
TUCKER	-29%	301,562	423,544	479,544	484,772	473,110	440,144
GLOVER	-21%	391,401	493,510	526,944	523,342	548,818	574,920
DISTRICT TOTAL	-26%	3,271,967	4,401,716	4,715,915	5,096,105	5,981,662	4,576,059
Conserve from Prior Yr.			6.7%	7.5%	14.8%		

GAS							
		FY12	FY11	FY10	FY09	FY08	FY07
HIGH SCHOOL	-22%	65,473	84,463	73,389	88,115	144,659	100,817
PIERCE	-34%	37,075	55,948	52,813	60,378	75,409	57,077
COLLICOT	-39%	25,702	42,064	35,781	46,074	45,138	2,118
CUNNINGHAM	-39%	25,704	42,063	35,781	46,074	45,138	2,118
TUCKER	-71%	5,792	19,839	20,411	25,167	25,634	21,305
GLOVER	-37%	23,628	37,422	33,787	34,482	32,474	31,849
DISTRICT TOTAL	-35%	183,374	281,799	251,962	300,290	368,452	215,284
Conserve from Prior Yr.			-11.8%	16.1%	18.5%		

Note: Summer School moved from HS Building to Pierce for Summer 2010, then back to HS for 2011

FY 12 Totals on summary page are in progress until June Invoices received in 2012

Rooftop Production begins in Jan 2012, Mar production not in yet

## IN HOUSE ROOF RESTORATION PROJECT

Calendar 2011 Glover & Tucker Roof Restoration In-Sourcing Projects						
	Glover	Tucker			Glover	Tucker
Roof Area SF	16,500	17,834		Roof Area SF	16,500	17,834
Est. Bid Cost	\$ 110,000	\$ 116,000		Total In-House	\$ 37,947	\$ 38,974
Bid Cost per SF	\$ 6.67	\$ 6.50		In-House Per SF	\$ 2.30	\$ 2.19
Warranty	10 yrs	10 yrs		Warranty	10 yrs	10 yrs
				White Knight	\$ 28,861	\$ 31,072
				Poly Grip	\$ 791	\$ 650
				Rollers & Misc	\$ 100	\$ 100
				Cleaning Prep Materials	\$ 75	\$ 75
				Materials Subtotal	\$ 29,827	\$ 31,897
				Labor ( Mostly OT)	\$ 8,120	\$ 7,077
				Est Bid Cost	\$110,000	\$116,000
				Actual In-House	\$ 37,947	\$ 38,974
				Cost Avoided	\$ 72,053	\$ 77,026
				Bid Price By the Dollar	\$ 1.00	\$ 1.00
				% Discount from Bid	\$ 0.66	\$ 0.66
				In-house Per Dollar Cost	\$ 0.34	\$ 0.34







Completed in house roofing project at Glover Elementary





**GLOVER ELEMENTARY SCHOOL ROOF COATING COMPLETED**



**DUCT WORK CONDITIONS PRIOR TO REPAIRS**







DUCT WORK CONDITIONS PRIOR TO REPAIRS





**DUCT WORK UNDER REPAIR**









## TOWN WIDE SOLAR PROJECTS

LOCATIONS	NUMBER OF PANELS	WDC (GENERATED)	PROJECTED YEARLY SAVINGS TOWN/ SCHOOLS
MILTON H.S.	1342	390,000	
PIERCE MIDDLE	495	143,000	
TUCKER ELEMENTARY	78	19,000	
GLOVER ELEMENTARY	572	165,000	
COLLICOT/CUNNINGHAM	250	73,000	
TOWN HALL	136	29,000	
			\$105,000
NOTES: LEASE PROGRAM FOUR	SCHOOLS .10 CENTS	KWL	
COLLICOT/CUNNINGHAM	.18 CENTS	KWL (OWN)	
TOWN HALL	.18 CENTS	KWL (OWN)	



GENERAL NOTES:  
 - ALL BEINGS ARE SUBJECT TO FINAL  
 STRUCTURAL ANALYSIS AND  
 CONSTRUCTION LAYOUT  
 - ALL MOUNTING, TOWERS AND  
 RACKING SYSTEMS ARE SUBJECT TO  
 CHANGE TO AN 18" OR EQUAL  
 MANUFACTURER IN ORDER TO  
 ACCOMMODATE THE SUGGESTED  
 CONSTRUCTION SCHEDULE

194" FROM NORTH  
 - 130" FEET FROM NORTH  
 - 12" PITCH ON PANEL CLAW  
 - REDUCED PHASE MOUNT  
 - 405,130 WATTS

**AS-BUILT  
 12-28-11**

REVISIONS:

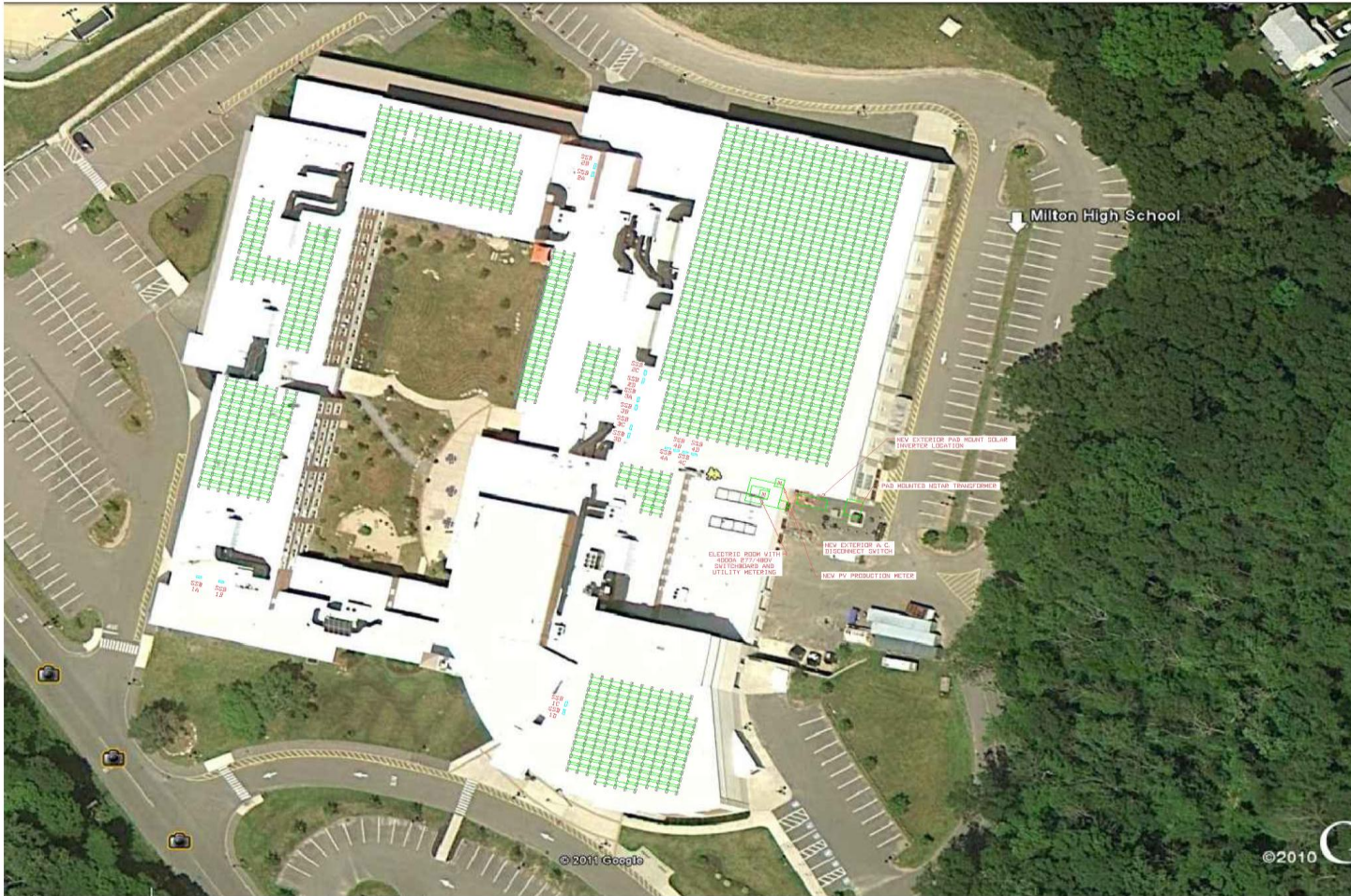


**BROADWAY ELECTRICAL CO. INC.**  
 200 PRESIDENT STREET  
 BOSTON, MA 02102  
 617-268-7900 FAX: 617-268-4199  
 email: bve@broadwayec.com

OWNER: **BROADWAY  
 RENEWABLE  
 STRATEGIES LLC**  
 PROJECT: **MILTON PUBLIC  
 SCHOOLS**

DRAWING TITLE:  
**MILTON HIGH  
 SCHOOL PV  
 SOLAR ARRAY**

JOB NO:	DRAWING NUMBER:
DATE: 09/29/11	<b>PV-1</b>
DRAWN BY: HJB	
CHECK BY: LAF	
SCALE: 1" = 30'	



**MILTON HIGH SCHOOL = Qty-1342 SOLAR PANELS**



**HIGH SCHOOL SOLAR PANELS B/C LINK**





**HIGH SCHOOL FIELD HOUSE SOLAR PANELS**









**GLOVER SOLAR PANELS - NEW SECTION (PLAYGROUND)**





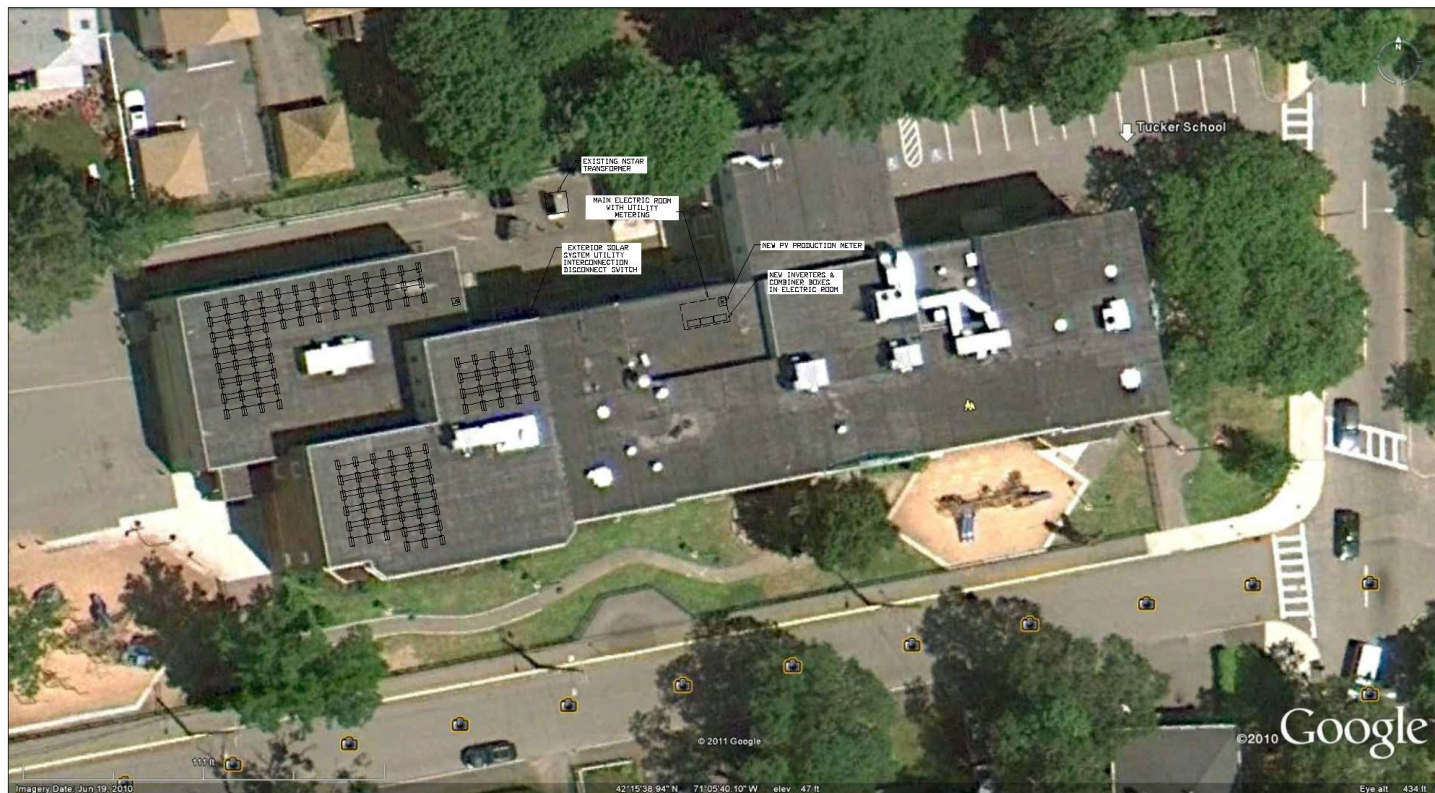
**GLOVER SOLAR PANEL OLD SECTION (SIDE ENTRANCE)**





**GLOVER GYM ROOF**





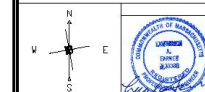
GENERAL NOTES:

- ALL DESIGNS ARE SUBJECT TO FINAL STRUCTURAL ANALYSIS AND CONSTRUCTION LAYOUT
- ALL MOUNTINGS, INVERTERS AND RACKING SYSTEMS ARE SUBJECT TO CHANGE TO AN "OR EQUAL" MANUFACTURER IN ORDER TO ACCOMMODATE THE SUGGESTED CONSTRUCTION SCHEDULE

120° FROM NORTH

- 78 SOLVINT1 245 PANELS
- 10° PITCH ON PANEL CLAW
- REDUCED SPACE MOUNT
- 19,110 WATTS

#### REVISIONS:



**BROADWAY ELECTRICAL CO. INC.**  
 255 PRUDENTIAL STREET  
 BOSTON, MA 02222  
 617-388-7800 FAX: 617-388-4169  
 email: bryg@broadwayec.com

OWNER: **BROADWAY RENEWABLE STRATEGIES LLC**

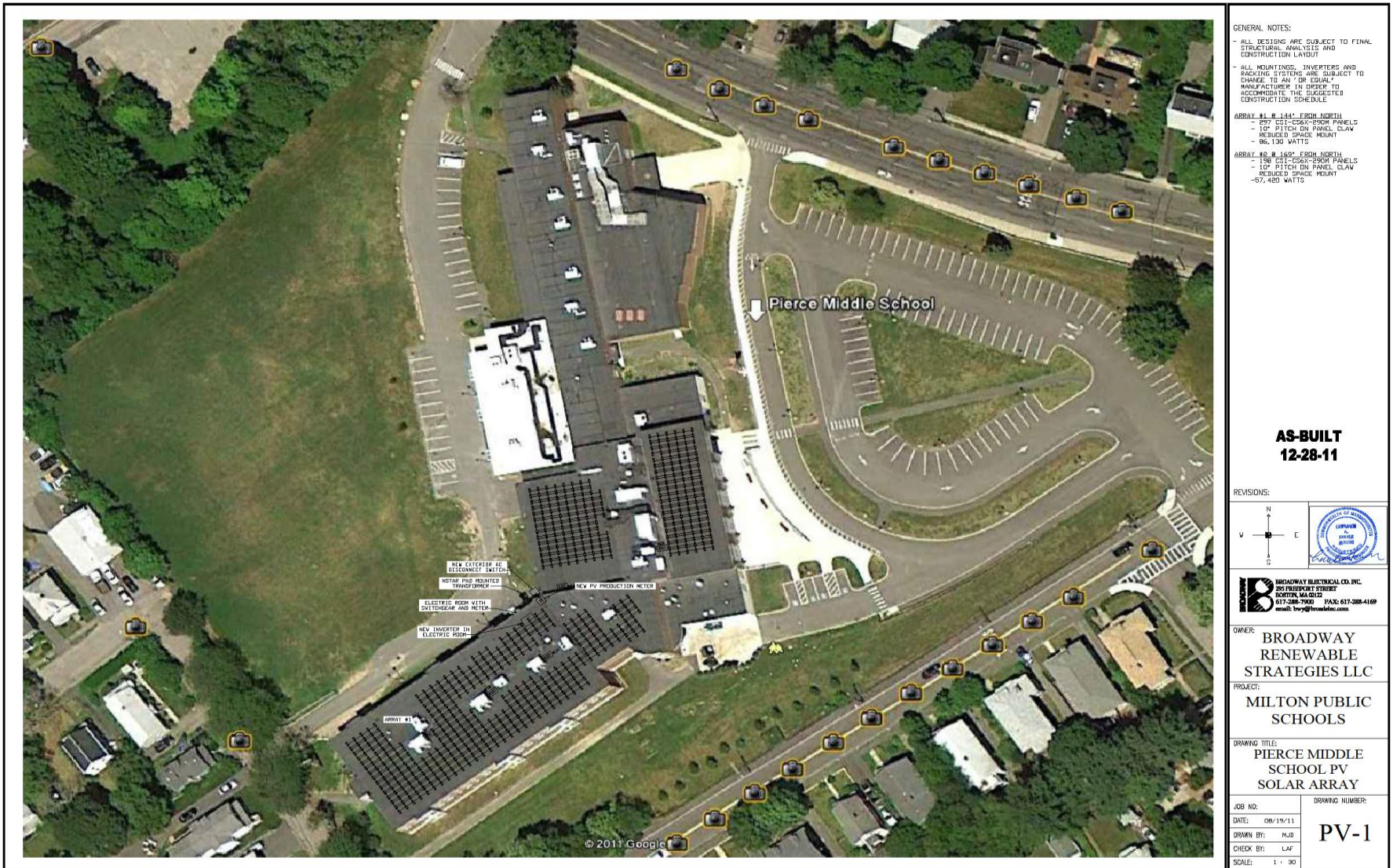
PROJECT: **MILTON PUBLIC SCHOOLS**

DRAWING TITLE: **TUCKER SCHOOL PV SOLAR ARRAY**

JOB NO:	DRAWING NUMBER:
DATE: 08/19/11	<b>PV-1</b>
DRAWN BY: MJD	
CHECK BY: LAF	
SCALE: 1/16" = 1' - 0"	

**Tucker School = Qty-78/245W Panels- 19,110WDC**





PIERCE MIDDLE SCHOOL = Qty-495 SOLAR PANELS





**PIERCE MIDDLE SCHOOL SOLAR PANELS (GYM ROOF)**





**HIGH SCHOOL SOLAR INVERTERS**

# CURRENT FUTURE GOALS OF THE CFD

- To complete Building Condition Study of all Facilities
- Final implementation of web based preventative maintenance and work order system to maintain buildings, equipment and HVAC systems
- Continue to evaluate and consolidate vendor contracts for operational efficiency/cost savings
- Obtain and recommend Energy Grants and programs to reduce energy consumption/cost savings