

PHILIP M. SMALL  
ATTORNEY-AT-LAW

Direct: 860-509-6575  
Fax: 860-509-6675  
psmall@brownrudnick.com

March 9, 2016

185 Asylum  
Street  
Hartford  
Connecticut  
06103  
tel 860.509.6500  
fax 860.509.6501

**VIA ELECTRONIC MAIL AND HAND-DELIVERY**

Mr. Robert Stein, Chairman  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

**Re: Petition of Quantum Biopower Southington, LLC for a Declaratory Ruling for  
the Location and Construction of an Approximately 1.1 Megawatt Anaerobic  
Digester Project at 49 DePaolo Drive, Southington, Connecticut**

Dear Chairman Stein:

On behalf of Quantum Biopower Southington, LLC ("Quantum"), we are submitting an original and fifteen (15) copies of the above-captioned Petition for a Declaratory Ruling ("Petition"), together with a filing fee of \$625.

In the Petition, Quantum requests that the Connecticut Siting Council approve the location and construction of a 1.1 megawatt anaerobic digestion system to be located at 49 DePaolo Drive in Southington, Connecticut.

Please contact Franca L. DeRosa at 860-509-6539 or me with any questions or if you need additional information.

Very truly yours,

BROWN RUDNICK LLP

By: \_\_\_\_\_

Philip M. Small  
Franca L. DeRosa  
Counsel for Quantum Biopower Southington, LLC

/jmb  
Enclosures

62422888 v1-WorkSiteUS-031196/0001

STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

PETITION OF QUANTUM BIOPOWER	:	PETITION NO. _____
SOUTHBURY, LLC FOR A DECLARATORY	:	
RULING FOR THE LOCATION AND	:	
CONSTRUCTION OF AN APPROXIMATELY 1.1	:	
MEGAWATT ANAEROBIC DIGESTER PROJECT	:	
AT 49 DEPAOLO DRIVE, SOUTHBURY,	:	March 9, 2016
CONNECTICUT		

QUANTUM BIOPOWER SOUTHBURY, LLC  
PETITION FOR A DECLARATORY RULING

Pursuant to Conn. Gen. Stat. §§ 4-176 and 16-50k(a) and Conn. Agencies Regs. § 16-50j-38 *et seq.*, Quantum Biopower Southbury, LLC (“Quantum”) requests that the Connecticut Siting Council (“Council”) approve by declaratory ruling Quantum’s location and construction of an approximately 1.1 megawatt (“MW”) anaerobic digestion system (the “Facility”), located at 49 DePaolo Drive in Southbury, Connecticut (the “Site”).

Conn. Gen. Stat. § 16-50k(a) provides that:

“Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling... (B) the construction or location ... of any customer-side distributed resources project or facility or grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Energy and Environmental Protection....”

As discussed fully in this petition, the Facility will be a “grid-side distributed resources” facility, as defined in Conn. Gen. Stat. § 16-1(a)(38) (revised to January 1, 2015),

under 65 MW that complies with the air and water quality standards of the Connecticut Department of Energy and Environmental Protection (“DEEP”). Additionally, the Facility will not have a substantial adverse environmental effect in the State of Connecticut.

## **I. COMMUNICATIONS**

Correspondence and other communication regarding this petition should be directed to the following parties:

Philip M. Small  
Franca L. DeRosa  
Brown Rudnick LLP  
185 Asylum Street, 38th Floor  
Hartford, CT 06103  
Telephone: (860) 509-6500  
Fax: (860) 509-6501  
Email: [psmall@brownrudnick.com](mailto:psmall@brownrudnick.com) and  
[fderosa@brownrudnick.com](mailto:fderosa@brownrudnick.com)

Brian Paganini  
Vice President & Managing Director  
Quantum Biopower Southington, LLC  
216 Bogue Road  
Harwinton, CT 06791  
Telephone: (860) 485-0343  
Fax: (860) 485-0349  
Email: [bpaganini@quantumbiopower.com](mailto:bpaganini@quantumbiopower.com)

## **II. DISCUSSION**

### **A. Background**

The Facility will generate electricity through anaerobic digestion, a natural process that produces methane biogas from the breakdown of organic wastes in the absence of oxygen. The

methane biogas will be used to fuel a combined heat and power (“CHP”) unit that produces usable heat in the form of hot water and electricity.

On May 28, 2015, Quantum requested that the Council confirm the project (as originally proposed with a nameplate electric output of 939 kilowatts) was not a “facility” subject to the Council’s jurisdiction under the Public Utility Environmental Standards Act, Conn. Gen. Stat. § 16-50g et seq. On May 29, 2015, Council staff issued a letter concurring that the project (as then proposed) “met the applicable criteria for a qualifying small power production facility under PURPA [the Public Utility Regulatory Policies Act of 1978]” and therefore, was not subject to Council jurisdiction (**Exhibit 1**).

Subsequent to the issuance of that letter, Quantum altered its proposed equipment, resulting in an increase in the Facility’s electric output. Specifically, Quantum’s equipment vendor was not able to provide the critical exhaust gas treatment and biogas conditioning equipment for the CHP unit needed to enable the Facility to meet DEEP’s standards for nitrogen oxide emissions. Therefore, the Facility had to be reconfigured. In addition, subsequent to the issuance of the Council letter, Quantum was approved by The Connecticut Light and Power Company, d/b/a Eversource Energy (“Eversource”), to place 1.1 MW of power on the local utility infrastructure, which contributed to the decision to increase the size of the Facility.

Quantum has met with the Town of Southington (the “Town”) several times over the past two years to discuss this project and has obtained all necessary land use approvals from the Town for the Facility. On January 7, 2014, the Town’s Planning and Zoning Commission

(“TPZ”) approved a Special Use Permit for the construction and operation of the Facility (SPU-531). On May 6, 2014, the TPZ approved a Site Plan Application for the Facility, and on November 17, 2015, approved a Site Plan Modification Application that reflected the changes described above (SPR-1667.2), which approval was documented in a letter dated November 23, 2015. In addition, on January 15, 2015, the Town Engineering Department approved the discharge of waste water from the Facility to the Town’s Water Pollution Control Facility. **Exhibit 2** contains the Town approvals described above.

Quantum has also negotiated and executed a Power Purchase Agreement dated November 11, 2015 (the “Agreement”) with the Town to sell, pursuant to Connecticut’s Virtual Net Metering Rules, part of the electricity generated by the Facility.<sup>1</sup>

To comply with Connecticut statutes and regulations, Quantum has filed both an air permit application and a solid waste permit application with the DEEP.

## **B. Description of the Site and Facility**

### **1. The Site**

As shown on the Site Plan (**Exhibit 3**), the Facility will be located on approximately two (2) acres of a 36.64-acre parcel at 49 DePaolo Drive in Southington, Connecticut, owned by B&R Corporation (Town Assessor’s Map 178, Lot 17) in an Industrial Zone (I-2). B&R Corporation is an affiliate of Quantum. Currently, a clean wood volume reduction, leaf compost and mulch manufacturing facility operates at the Site. The Site was formerly a gravel mine and, therefore, the majority of the land had been cleared. The former Southington

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<sup>1</sup> Also, the Town entered into a Virtual Net Metering Service Agreement with Eversource, dated June 29, 2015.

Landfill is directly west of the Site and mostly industrial/commercial development lies directly to the north, south and east of the Site. Quantum will lease the Site from B&R Corporation and will develop, construct, own and operate the Facility on the Site.

## 2. The Facility

As shown on the Site Plan (**Exhibit 3**), the Facility includes a 125-foot by 60-foot receiving/processing building, an 18-foot by 30-foot pump house and four processing tanks of various diameters. Three of the processing tanks are approximately 25 feet high with a diameter of approximately 24 – 29 feet and one (the digester tank) is approximately 60 feet high with a diameter of approximately 59 feet. There are also two tanks for water handling; one is approximately 24 feet high and the other is approximately 25 feet high, with diameters of approximately 18 and 41 feet, respectively. Other appurtenant equipment includes a biogas handling unit, electrical transformer, switch gear, the CHP (with a stack height of approximately 33 feet and a diameter of approximately 1 foot), an enclosed candlestick flare (with a stack height of approximately 27 feet and a diameter of approximately 5 feet), and an odor control device (with a stack height of approximately 20 feet and a diameter of approximately 2 feet).

Access to the Facility is restricted, with one gated access point supervised by an entrant official. The first portion of the access road to the Facility will use the existing gravel drive and the second portion will use a new gravel drive leading to the south side of the Facility.

The Facility will take in approximately 40,000 tons per year of food waste and through anaerobic digestion (a natural process that breaks down the food waste in the absence of

oxygen) will produce methane biogas. The methane biogas will be used to fuel a CHP unit that produces usable heat in the form of hot water and electricity. The CHP unit Quantum has chosen is the 2G Cenergy Biogas CHP Module Energy Conversion System. **Exhibit 4** provides details on the CHP unit. Quantum will also install a robust biogas conditioning system that includes hydrogen sulfide removal and biogas drying. The Facility will have a net electrical output of approximately 5,337,096 kilowatt hours per year and an electric capacity of approximately 1.1 MW.

The hot water generated will be used by the Facility and in adjacent buildings owned and operated by affiliates of Quantum. The Facility has been approved to interconnect to Eversource's electric distribution system and, therefore, the electricity will be fed to the electric distribution system. A portion of that electricity will be purchased by the Town under the Agreement to meet its electric needs.

The process of anaerobic digestion also produces co-products in the form of soil enhancements, fertilizers and compost. These products will be repurposed to the agricultural and landscape marketplace.

**C. The Facility Complies with DEEP's Air and Water Quality Standards and Will Not Have a Substantial Adverse Environmental Effect**

Loureiro Engineering Associates, Inc. conducted an Environmental Assessment ("EA") of the Facility (**Exhibit 5**). The EA confirmed that the Facility will comply with all DEEP air, solid waste and water quality standards and will not have a substantial adverse environmental effect.

## 1. Air Emissions and Odor

On July 14, 2015, Quantum filed a Permit Application for Stationary Sources of Air Pollution – New Source Review with DEEP to construct and operate the Facility (DEEP Application No. 201504762 – the “Air Permit Application”). The Air Permit Application was deemed “sufficient” on July 21, 2015 and is now undergoing technical review. As stated earlier, Quantum reevaluated its original equipment for this Facility and, due to an issue with possible exceedance of nitrogen oxide emissions from the original unit, chose to instead install a more robust biogas conditioning system that will meet all allowable limits for DEEP air emission constituents by utilizing lean burn technology and controls. The more robust biogas conditioning system includes hydrogen sulfide removal and biogas drying, both of which will increase the efficiency rating of the CHP unit and lead to a longer functional life expectancy. Quantum filed revisions to its Air Permit Application on October 19, 2015 to reflect the changes to its proposed equipment. The Facility will meet all applicable DEEP air emissions requirements. Section 3.6 of the EA (**Exhibit 5**) contains further information regarding the Air Permit Application.

Potential odors from the receiving operation at the Facility will be effectively mitigated through containment and treatment. The receiving operations (where the organic material arrives) will be within an enclosed building with trucks entering through an automated rollup door that closes after the truck enters to minimize the noise, odor and visibility of the receiving process. Odors within the building will be controlled through a capture and treat system. Air will be continually drawn from within the building to achieve a slight negative pressure within

the building to prevent fugitive odors from escaping. The extracted air will pass through an activated carbon-based odor control system. The odor control system will consist of three main components that will remove virtually all odors from the air stream prior to exhausting to atmosphere: a pre-filter; a centrifugal fan; and a two-stage activated carbon system. Further details on the odor control system are included in Section 3.6 of the EA (**Exhibit 5**).

## 2. Solid Waste Management

Quantum has also filed a Permit Application for Construction and Operation of a Solid Waste Facility with the DEEP (DEEP Application No. 201303057 – the “Solid Waste Application”). Robert C. Isner (Director of the Waste Engineering and Enforcement Division of DEEP’s Bureau of Materials Management and Compliance Assurance) issued a letter on September 24, 2015 praising Quantum’s efforts to “advance Connecticut’s goal to develop state of the art organics recycling capacity, and to help with the education on the ease and benefits of recycling organics.” (**Exhibit 6**). In fact, Mr. Isner further stated that Quantum’s Facility “is exactly the type of approach needed to drive down solid waste disposal costs and recapture the value in the waste stream currently being disposed of.” (**Exhibit 6**). Also, on March 2, 2015, DEEP issued a Notice of Tentative Determination to Approve a Permit to Construct and Operate a Solid Waste Facility and a Draft Permit to Construct and Operate (**Exhibit 7**).<sup>2</sup>

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<sup>2</sup> The description of the Facility in Exhibit 7 differs from the description on page 5 of this Petition. The description in Exhibit 5 reflects a prior design, and will be updated through the DEEP permitting process, pursuant to Conn. Gen. Stat. § 22a-208a(d).

3. Water Use and Discharge

Once the anaerobic digestion has occurred, the digested solids are removed and the remaining filtrate is further treated and discharged to the Town's Water Pollution Control Facility via a recently-installed sanitary sewer and sewage pump station that was extended from West Queen Street to the Site. The discharge of the wastewater generated by the anaerobic digestion process will be done pursuant to a DEEP General Permit for Miscellaneous Discharges of Sewer Compatible (MISC) Wastewater, thereby providing additional assurances that Connecticut water quality requirements will be met. Quantum is currently in the process of applying for that DEEP discharge permit.

Quantum received Town approval on January 15, 2015 to discharge its wastewater to the Town's Water Pollution Control Facility (**Exhibit 2**). The approval required that Quantum meet specified discharge limits and Quantum is required to provide documentation to the Town verifying that its discharge is below those limits.

4. Wetlands, Watercourses, Stormwater and Water Supply

No wetlands or watercourses will be directly impacted by the Facility. The closest flagged wetland area, located on the southeast corner of the parcel, is greater than 500 feet away. Before and during construction of the Facility, sedimentation and erosion controls will be installed and maintained in accordance with the Stormwater Pollution Control Plan ("SWPCP") and the related Construction General Permit (Permit No. GSN002420 /expires September 30, 2018) that are currently in effect at the Site (see Section 2.5.2 of the EA (**Exhibit 5**) for further details).

The closest Level A aquifer protection area to the Facility is approximately 2 miles to the east. There are three private water wells on adjacent parcels with the closest well approximately 600 feet from Facility. There is a private supply well located on the overall parcel, which will be abandoned for domestic consumption, but may be used for process waters to serve non-domestic operations at the Site. Public water service has been extended into the Site to provide domestic water service and fire protection.

##### 5. Historic and Archaeological Resources

Historic and archaeological concerns at the Site are minimal since the Site was formerly a gravel mine. A historical site evaluation was requested from the State Archeologist, Dr. Brian Jones. In his January 26, 2016 letter, Dr. Jones replied stating that the Facility is “expected to have *No Effect* on previously unidentified archaeological or historical resources.” (**Exhibit 8**). A request for review of the project was also made to the State Historic Preservation Office (“SHPO”) on December 16, 2015 (the submittal to SHPO is Exhibit E to the EA, (**Exhibit 5**)). To date, no reply has been received from SHPO. Quantum will forward SHPO’s response to the Council as soon as it is obtained.

### III. NOTICE

Quantum has provided notice of this petition to all persons and appropriate municipal officials and governmental agencies to whom notice is required to be given pursuant to Conn.

Agencies Regs. § 16-50j-40(a).<sup>3</sup> A copy of the notice letter, a list of recipients and a location map for the abutters are attached as **Exhibit 9**.

#### **IV. BASIS FOR GRANTING OF THE PETITION**

Under Conn. Gen. Stat. § 16-50k(a), the Council is required to approve by declaratory ruling the construction or location of a grid-side distributed resources project or facility with a capacity of not more than 65 MW, as long as the facility meets DEEP air and water quality standards. The proposed Facility meets both of these criteria. First, the Facility is a “grid-side distributed resources” project, as defined in Conn. Gen. Stat. § 16-1(a)(38), because the Facility is “a unit with a rating of not more than sixty-five megawatts that is connected to the transmission or distribution system....” Second, as demonstrated above, the Facility will meet DEEP air and water quality standards. In addition, as demonstrated above, the construction and operation of the Facility will not have a substantial adverse environmental effect in the State of Connecticut.

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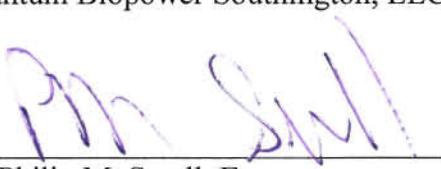
<sup>3</sup> Conn. Agencies Regs. § 16-50j-40(a) requires that “[p]rior to submitting a petition for a declaratory ruling to the Council, the petitioner shall, where applicable, provide notice to each person other than the petitioner appearing of record as an owner of property which abuts the proposed primary or alternative sites of the proposed facility, each person appearing of record as an owner of the property or properties on which the primary or alternative proposed facility is to be located, and the appropriate municipal officials and government agencies [listed in Section 16-50/ of the Connecticut General Statutes].”

## V. CONCLUSION

For the reasons stated above, Quantum respectfully requests that the Council approve the location and construction of the Facility by declaratory ruling.

Respectfully submitted,

Quantum Biopower Southington, LLC

By: 

Philip M. Small, Esq.

Franca L. DeRosa, Esq.

Brown Rudnick LLP

185 Asylum Street, 38th Floor

Hartford, CT 06103

Telephone: (860) 509-6500

Facsimile: (860) 509-6501

Electronic Mail: [psmall@brownrudnick.com](mailto:psmall@brownrudnick.com)  
and [fderosa@brownrudnick.com](mailto:fderosa@brownrudnick.com)

## EXHIBITS

**Exhibit 1** – Connecticut Siting Council Letter, dated May 29, 2015

**Exhibit 2** – Town of Southington Approvals

**Exhibit 3** – Site Plan

**Exhibit 4** – 2G Cenergy Biogas CHP Module Energy Conversion System Specifications

**Exhibit 5** – Loureiro Engineering Associates, Inc., Environmental Assessment, dated February, 2016

**Exhibit 6** – Robert C. Isner, DEEP, Letter dated September 24, 2015

**Exhibit 7** – DEEP Notice of Tentative Determination to Approve a Permit to Construct and Operate a Solid Waste Facility, and Draft Permit to Construct and Operate

**Exhibit 8** – Dr. Brian Jones Letter, dated January 26, 2016

**Exhibit 9 --** Notice

# EXHIBIT 1

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*CONNECTICUT SITING COUNCIL LETTER, DATED  
MAY 29, 2013*



# STATE OF CONNECTICUT

**CONNECTICUT SITING COUNCIL**  
Ten Franklin Square, New Britain, CT 06051  
Phone: (860) 827-2935 Fax: (860) 827-2950  
E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)  
[www.ct.gov/csc](http://www.ct.gov/csc)

May 29, 2015

Franca L. DeRosa, Esq.  
Philip M. Small, Esq.  
Brown Rudnick  
185 Asylum Street  
Hartford, CT 06103

**RE: Quantum Biopower, LLC – 939 Kilowatt Nameplate Capacity Anaerobic Digestion Project, 49 DePaolo Drive, Southington, Connecticut**

Dear Attorneys DeRosa and Small:

The Connecticut Siting Council (Council) is in receipt of your correspondence dated May 28, 2015, seeking acknowledgment as to the exemption of the above-referenced proposed 939 kilowatt (kW) anaerobic digestion project from the jurisdiction of the Council.

In your consideration of this response, please note that the information provided herewith, offered as a good faith response to your request for an acknowledgment, is not an official statement of the Council in that it has not been issued by a vote of the Council. Any person may bring a petition for declaratory ruling before the Council, pursuant to Sections 16-50j-38 through 16-50j-40 of the Regulations of Connecticut State Agencies and Section 4-176 of the Connecticut General Statutes, to receive an official ruling of the Council.

In undertaking this analysis it is important to note that “facility,” under Connecticut General Statute §16-50i(a)(3), refers to “any electric generating or storage facility using any fuel, including nuclear materials, including associated equipment for furnishing electricity, **but not including** an emergency generating device, as defined in subsection (f) of this section or a facility (A) owned or operated by a private power producer, as defined in section 16-243b, (B) which is a qualifying small power production facility or a qualifying cogeneration facility under the Public Utility Regulatory Policies Act of 1978 (PURPA), as amended, or a facility determined by the Council to be primarily for a producer’s own use, and (C) which has, in the case of a facility utilizing renewable energy sources, a generating capacity of one megawatt of electricity or less and, in the case of a facility utilizing cogeneration technology, a generating capacity of twenty-five megawatts or less.” (Emphasis added).

Consequently, to meet the criteria for an exemption from Council jurisdiction, the subject anaerobic digestion project must be owned or operated by a private power producer, be a qualifying small power production facility under PURPA and, in accordance with the definition of anaerobic digestion as a Class I renewable energy source under Connecticut General Statute §16-1(20), have a generating capacity of one megawatt or less.

According to your written correspondence, Quantum Biopower, LLC is a private power producer that will own and operate the project. Furthermore, the proposed project meets the applicable criteria for a qualifying small power production facility under PURPA and has a nameplate

capacity of 939 kW utilizing a Class I renewable energy source. Pursuant to the provisions of Connecticut General Statute §16-50i(a)(3), such circumstances do not meet the criteria of an "electric generating facility" for the purposes of Council jurisdiction. Therefore, the 939 kW anaerobic digestion project that is the subject of your inquiry would be properly reviewed by the Town of Southington.

I hope you find this responsive to your request. If you have any other questions please do not hesitate to contact me.

Thank you.

Very truly yours,



Melanie A. Bachman  
Acting Executive Director/Staff Attorney

# EXHIBIT 2

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*TOWN OF SOUTHBURY APPROVALS*

# PLANNING AND ZONING DEPARTMENT

MUNICIPAL CENTER – 196 NORTH MAIN STREET  
SOUTHBURY, CONNECTICUT 06489

Phone: (860)276-6248 / Fax: (860)628-3511

January 13, 2014

B & R Corp.  
216 Bogue Road  
Harwinton, CT 06791

RE: Special Permit Use Application – 49 DePaolo Drive (SPU #531)

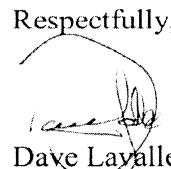
Dear Sir:

On January 7, 2014, the Planning and Zoning Commission voted to approve your Special Permit Use application for the construction of multiple buildings on one parcel owned by B & R Corporation as needed to facilitate the development of a volume reduction plant including anaerobic digestion and clean wood processing, property located at 49 DePaolo Drive, subject to the following conditions:

- Biofiltration be accomplished via chemical scrubber that meets with the approval of the Engineering Department.

The special permit use becomes effective upon the filing of the approved special permit use plan with the Town Planner's office and the filing of this original approval letter in the office of the Town Clerk, pursuant to Section 8-3d of the General Statutes of Connecticut. Such plan shall be certified by the Planning and Zoning Commission prior to filing. An approved special permit use not put into effect within one year becomes null and void. A single one year extension may be granted before the approval's first anniversary date (Section 8-03.3).

Respectfully,

  
Dave Lavallee  
Assistant Town Planner

cc: Town Engineer  
Town Assessor  
Building Official

# PLANNING AND ZONING DEPARTMENT

MUNICIPAL CENTER 196 NORTH MAIN STREET  
SOUTHBURY, CONNECTICUT 06489

Phone: (860) 276-6248 • Fax: (860) 628-3511

May 8, 2014

B & R Corporation  
216 Lower Bogue Road  
Harwinton, CT 06971

RE: 49 DePaolo Drive (SPR #1667)

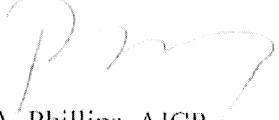
Dear Sir:

On May 6, 2014, the Planning and Zoning Commission voted to approve the above-referenced site plan application for the construction of an anaerobic digester designed to generate biogas for power generation at the site with a generator; construction of a clean wood processing facility; and a greenwaste composting facility, collectively classified as a volume reduction facility, with the following stipulations:

1. Provide details of the wastewater treatment to the satisfaction of both the Town of Southington WPCA and the State of Connecticut DEEP.
2. Provide detail for spillway on the plan as it is already noted in the detail plan sheet 16.
3. Subject to the acknowledgements to Engineering comments outlined in the letter by George Andrews of LEA dated and received on April 15, 2014.
4. Final approval of the septic system for the Maintenance Facility is subject to Health Department approval.

Please submit 6 paper sets of revised plans. Once plans are signed, the Town will set any bonds required, which must be posted prior to the start of any improvements. Building and zoning permits as well as a preconstruction meeting will be required prior to the start of any work. Please note that this approval is good for a period of five (5) years, which will expire on May 6, 2019. You can request a five year extension prior to the expiration date if the work has not been completed.

Respectfully,



Robert A. Phillips, AICP  
Director of Planning and Community Development

cc: Engineering Department  
Building Department  
Assessor's Department  
Loureiro Engineering Associates, Inc.

# PLANNING AND ZONING DEPARTMENT

MUNICIPAL CENTER - 196 NORTH MAIN STREET

SOUTHBURY, CONNECTICUT 06489

Phone: (860) 276-6248 - Fax: (860) 628-3511

November 23, 2015

B & R Corp  
216 Bogue Road  
Harwinton, CT 06791

RE: 49 DePaolo Drive (SPR #1667.2)

Dear Sir:

On November 17, 2015, the Planning and Zoning Commission voted to approve the above-referenced site plan modification application to consolidate process building into one structure, property located at 49 DePaolo Drive, subject to the following stipulations:

1. Provide details of the wastewater treatment to the satisfaction of both the Town of Southbury DPW and the CT DEEP.
2. Install Flow Meter on effluent discharge into public water system.
3. Final design approval by Engineering Department of Advance Carbon System Odor Control Unit.

We are in the process of getting the submitted plans signed. Once plans are signed, the Town will set any bonds required, which must be posted prior to the start of any improvements. Building and zoning permits and a preconstruction meeting will be required prior to the start of any work. Please note that this approval is good for a period of five (5) years, which will expire on November 17, 2020. You can request a five year extension prior to the expiration date if the work has not been completed.

Respectfully,

  
Robert A. Phillips, AICP  
Director of Planning and Community Development

cc: Engineering Department  
Building Department  
Assessor's Office

# Town of Southington

## Engineering Department

KEITH HAYDEN, P.E.  
TOWN ENGINEER

JAMES A. GRAPPONE, P.E.  
ANNETTE S. TURNQUIST, P.E.  
ASSISTANT TOWN ENGINEERS



MUNICIPAL CENTER  
196 NORTH MAIN STREET  
SOUTHBURY, CT 06489  
TEL. (860) 276-6231  
FAX (860) 628-8669

January 12, 2015

Mark Vigneault, Operations Manager  
Quantum Biopower Southington, LLC  
49 DePaolo Dr.  
Southington, CT 06489

**RE: Quantum Biopower LLC, 49 DePaolo Drive, Southington CT Effluent Limits**

Dear Mr. Vignault,

On December 18, 2014 we met to discuss the Town's limits on your effluent discharge entering our sanitary system. After considerable discussion the following effluent limits were agreed to:

Pollutant	Average Daily Limit	Maximum
BOD	185 mg/L	370 mg/L
Phosphorus	5 mg/L	10 mg/L
Suspended Solids	185 mg/L	370 mg/L
Nitrogen	50 mg/L	50 mg/L

This approval is conditioned on you supplying documentation showing that your effluent discharges fall below these limits.

If you have any questions please do not hesitate to contact me.

Sincerely,

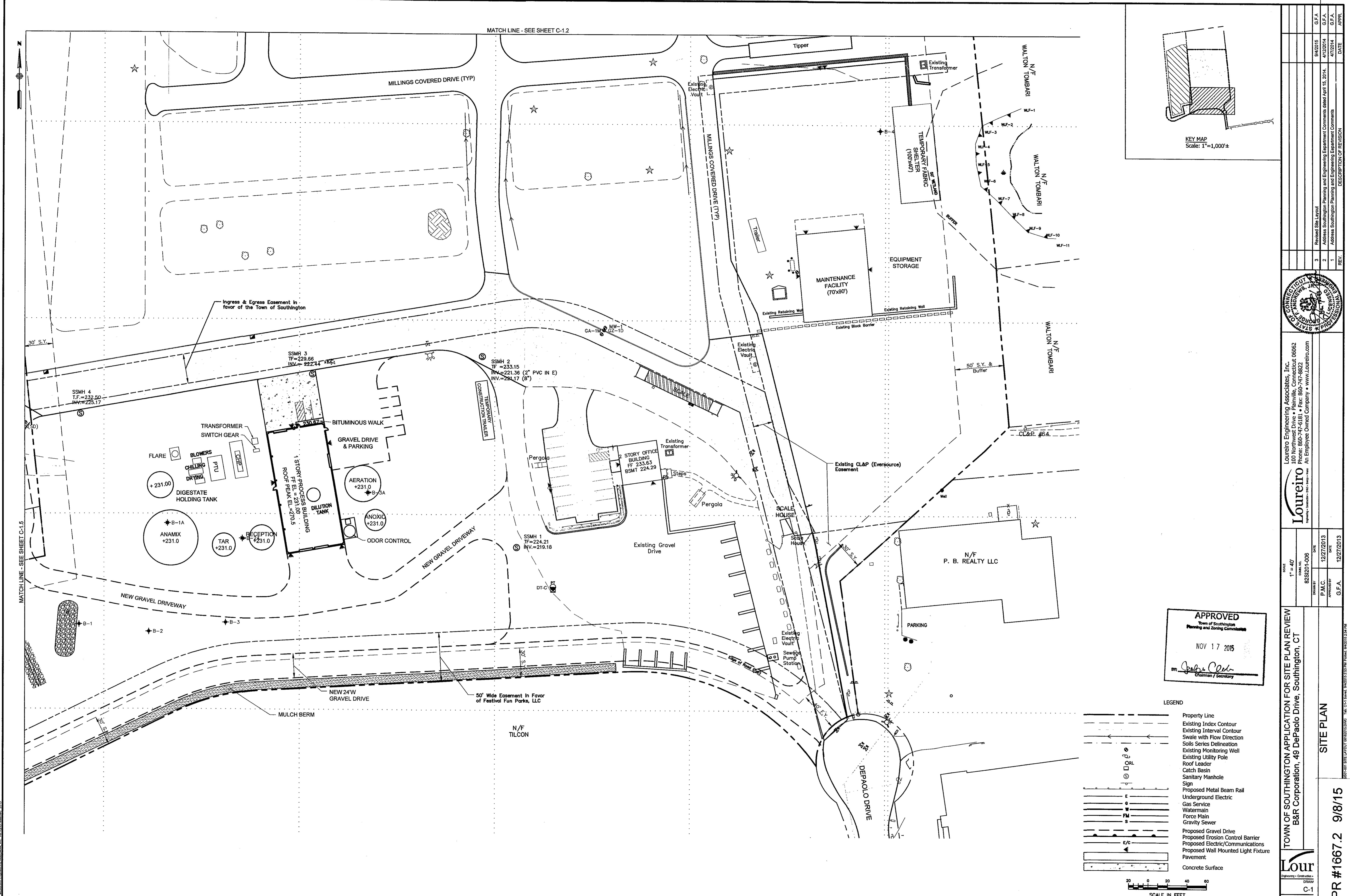
Keith Hayden  
Town Engineer

c: Mark Sciota, John DeGioia, Jim Grappone, Steve Siegal -Tighe & Bond

# EXHIBIT 3

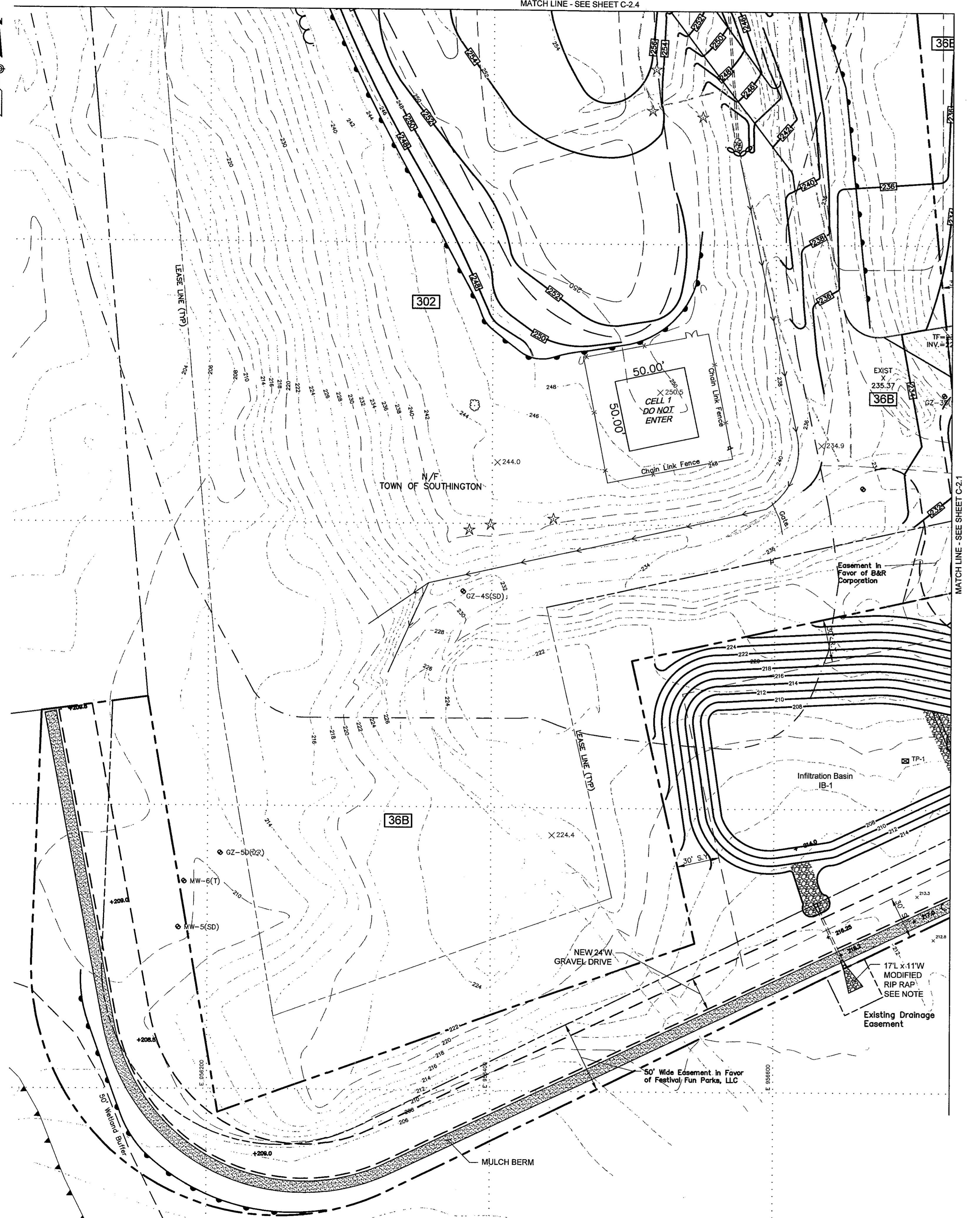
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*SITE PLAN*





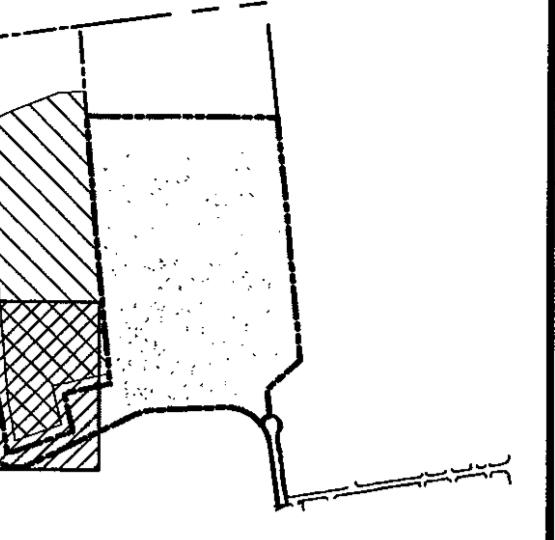
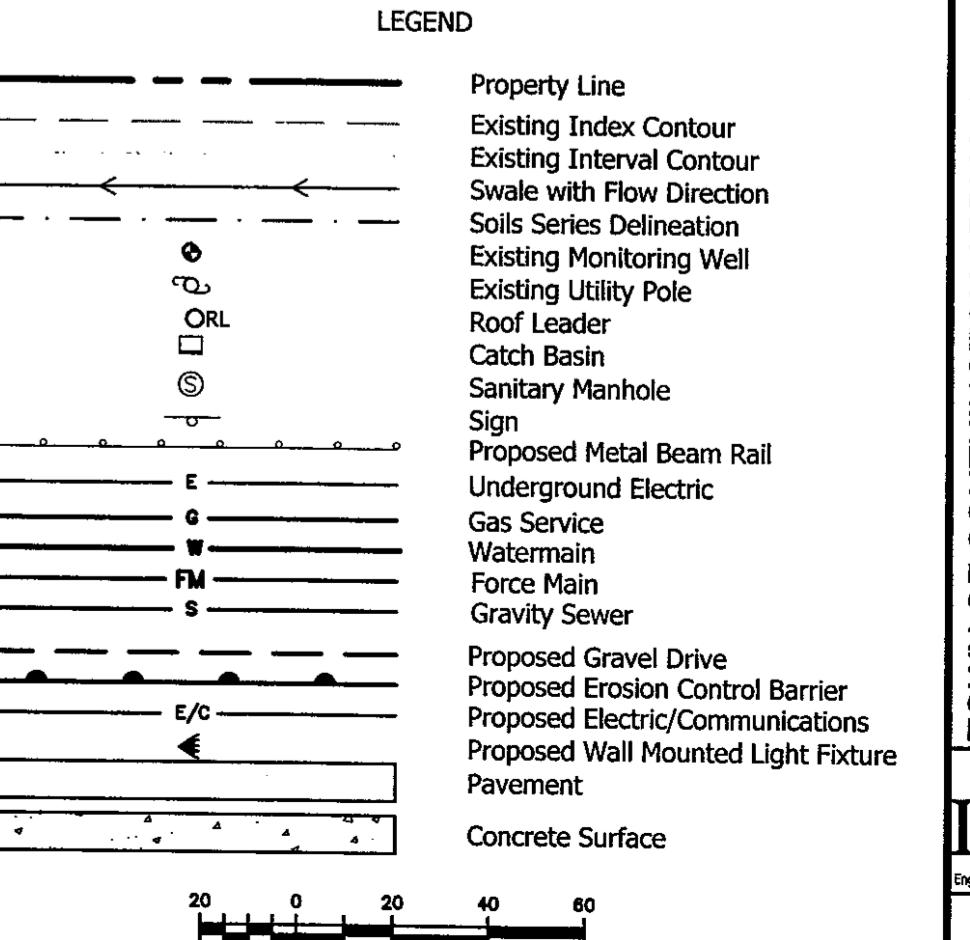




**NOTE:**  
The infiltration basin proposed has been designed to store the volume of runoff generated from the 100-year recurrence interval storm event without any credit for infiltration. The infiltration capacity of this site is extreme as it was a mined sand pit. The result is a very conservatively sized basin which will handle storm event well over the 100-year event when infiltration is accounted for. The 2002 Guidelines for Soil Erosion and Sediment Control requires an emergency spillway for all basins. This basin has been designed with the spillway as shown but it is clearly highly unlikely that flow would ever actually discharge due to the highly conservative nature of the design.

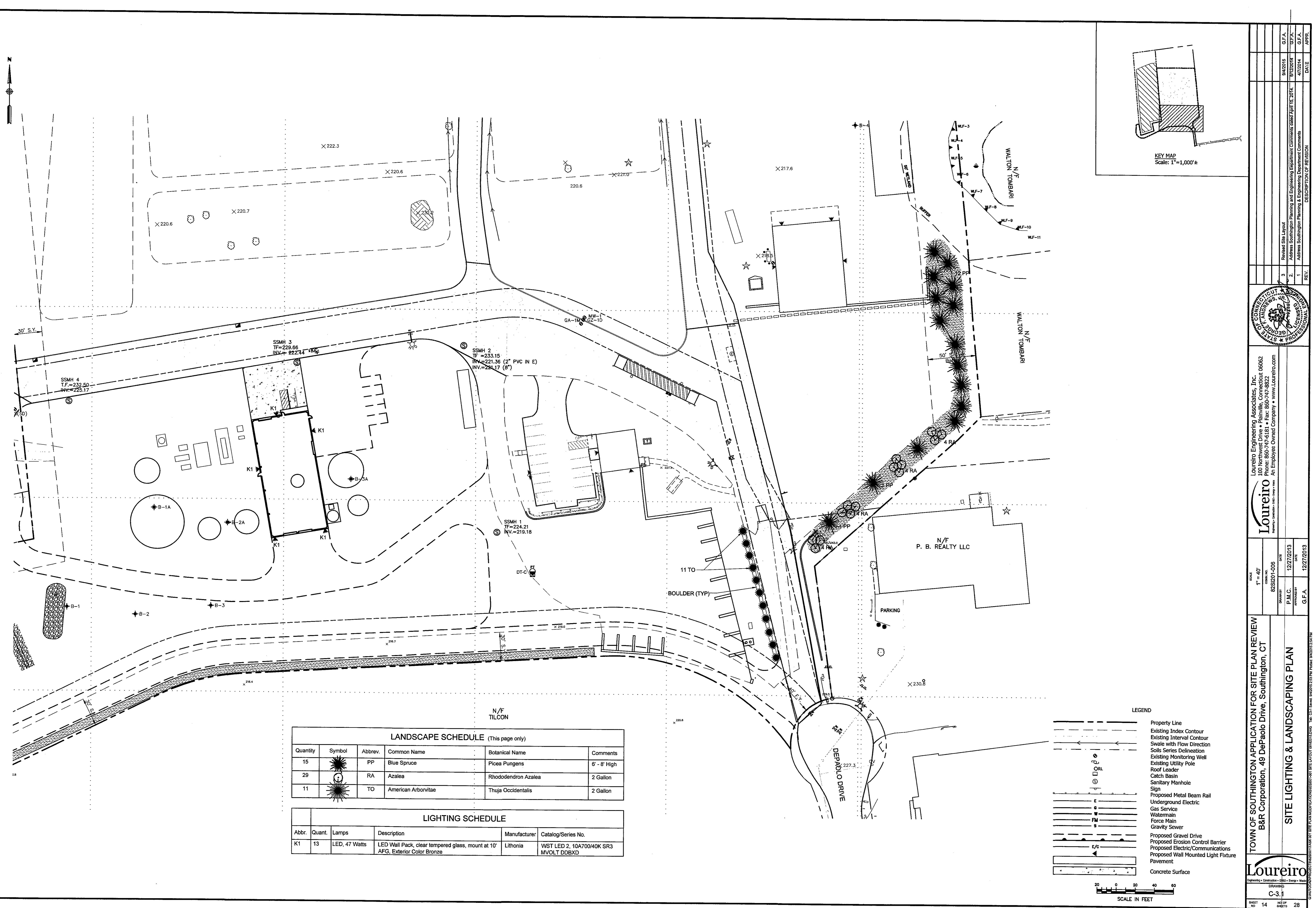
This Erosion Control Plan have been prepared in accordance with the "2002 Guidelines for Soil Erosion and Sediment Control," and supplements

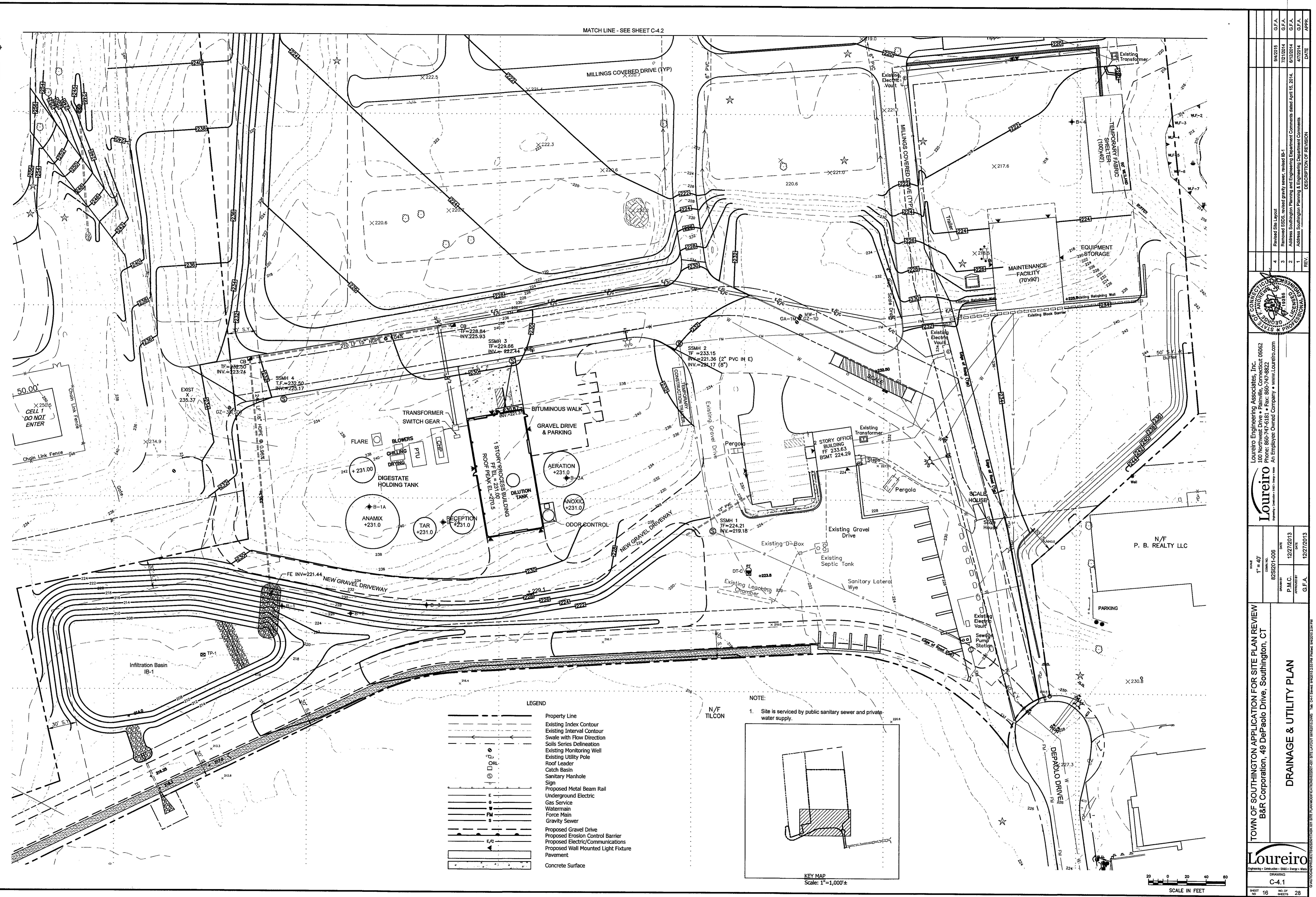
George F. Andrews, Jr., P.E., L.E.P. Lic. No. 19286



KEY MAP

B&R Corporation, 49 DePpaolo Drive, Southington, CT		1 = 40'	
		COMM. NO.	82SI201-006
		DRAWN BY	DATE
		P.M.C.	12/27/2013
		APPROVED BY	DATE
		G.F.A.	12/27/2013
Loureiro		GRAVELING & EROSION CONTROL PLAN	
		Engineering • Construction • EHSS • Energy • Waste	
		DRAWING NO. C-25	
		NO. OF SHEETS 28	
		S: GAUTI CAD/DRIVE/C:\S28\01\T\SK01\ SITE PLAN\GRADING\2015-01-SITE LAY OUT 08/20/2015.DWG Tab: C25 Saved: 9/4/2015 2:53 PM Plotted: 9/4/2015 2:54 PM	





# EXHIBIT 4

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*2G CENERGY BIOGAS CHP MODULE ENERGY  
CONVERSION SYSTEM SPECIFICATIONS*



Technical Spec Sheet | BIOGAS CHP Module | Energy Conversion System | 60Hz - 480V - 3Ph



**avus® Series** **BIOGAS**

**CHP Cogeneration System**  
With Thermo-Dynamics Technology  
Digital 2G® GEM  
General Electronic Management

**1200 ekW**  
**60Hz**

# Biogas

## Basic Description



## CHP Module | 1200 kW/h 480V - 60Hz - 3Ph

# Advanced CHP Technologies

## Unique Features with Added Value

Reliable, rugged and highly durable factory-designed, production line assembled, professionally packaged, and post-production tested 2G® Biogas Cogeneration Module, supplied in an “all-in-one” package that is “connection-ready”. Manufactured at 2G® ISO compliant production facilities in the USA. This CHP (Combined Heat & Power) cogeneration equipment is a fully integrated power generation system, with state-of-the-art technology that results in optimum performance and efficiency. The 2G® CHP module integrates all cogeneration components into one unique package that converts energy more efficiently than conventional CHP systems.

The robust design utilizes full authority electronic engine management, incl. CHP performance monitoring that provides prolonged life, low maintenance, and high efficiency. Items such as, engine & system controls, synchronizing and paralleling switchgear, heat recovery (both for engine jacket water and exhaust), the entire thermal heat technology system, pumps, piping, plumbing, etc., are all included “within the module” dramatically reducing the risk of cost overruns and performance issues associated with conventional “site built” systems.

**The 2G® CHP module allows for optimized efficiency by maximizing heat recovery and applying a more efficient combustion technology, leading to a higher electrical output.**



Complete CHP Module



Small Footprint incl. Thermo Dynamics Technology

### Comprehensive Basic Scope of Supply

- High Efficiency Biogas Engine (Lean Burn Technology)
- Advanced and Optimized Exhaust Gas Turbocharger
- Electrical Jacket Water Heater System in Cold Regions
- Extra Large Oil Capacity Sump with Oil Refill Automatic
- Pressure Lubrication System with Gear Pump
- Advanced CHP Type Air Cleaner System
- Gas Train & Biogas Fuel System compliant with NFPA 37, tested and approved to UL, CSA, EU, and DIN Standards
- Biogas Blower, Explosion-proof tested and ATEX certified
- Advanced High Efficiency Two-Stage Fuel Mixer
- Proprietary Air/Fuel Ratio Controller
- Digital Microprocessor Controlled Electronic Ignition
- Heat Value Fluctuation Detection
- Vibration Detection & Detonation Protection
- Complete Heat Recovery System, Factory installed
- Self-Cleaning Jacket Water Plate Heat Exchanger
- High Efficiency Stainless Steel Exhaust Heat Exchanger
- Exhaust System incl. Flex Connector & Silencer
- Ultra Low Emissions Capability
- Thermal Heat Distribution Connections fully integrated
- Thermo Dynamics Technology
- Advanced Cooling System, Mixture Inter-Cooler & Dry Radiator / Re-Circulation Cooling System (beltless)
- General Digital Control System with Protection Devices
- Heat Value Fluctuation Detection Technology
- Utility Grade Switchgear (CSA, UL, NEMA, IEEE, CE)
- Grid Interconnection Relays per CSA/UL & IEEE 1547
- Electronically operated Circuit Breaker
- Optimized High Efficiency Synchronous Generator
- Electrical Load Share Governor System
- 24V Electrical Starter, Battery Rack & Cables
- Integrated High Performance Battery Charger
- Central Wiring Harness incl. Sensors
- Torsion-resistant Design with Solid Frame Structure
- Heavy Duty Oscillation Decoupling Devices
- Multiple Deck Design with integrated Spill Tray
- Biogas Micro Filtration System
- Fluidistor Gas Flowmeter & Gas Vacuum Sensor
- Gas Pressure, Gas Temperature, and Ambient Air Temperature Sensors
- Double Magnet Valve & Zero Pressure Regulator
- By-Directional Deflagration Flame Arrestor, ATEX Cert.
- Set of Pressurization & Expansion Vessels & Valves
- Three Way Valve & Electrothermic Actuator
- Set of GRUNDFOS VersaFlo® self-lubricated Main Hot Water Circulation Pumps and Sensors
- Optional Thermal Distribution Assembly fully integrated
- Water Circulation Dirt Collection Unit
- On-Line Remote Monitoring & Control

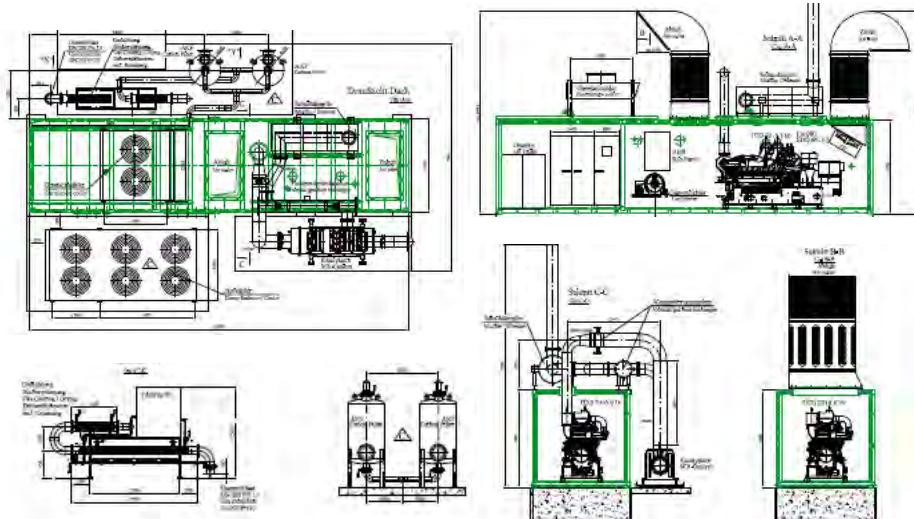
## CHP Module | Fully Containerized Option

### A genuine “Plug & Play” Biogas CHP Solution

2G® advanced container modules are designed for easy operation, to minimize floor space, and to contain the entire CHP cogeneration plant in one unit “all-in-one”. Due to a compact layout with integrated control-and switchgear equipment, as well as a ventilated noise protection enclosure, these modules can be placed anywhere, even in residential areas. A smart and economical alternative to traditional inside installations; highly efficient and much more cost-effective.

### This containerized modular System is guaranteed less expensive than a traditional Inside Building Installation

Containerized CHP modules provide many advantages. All heat exchanger and heat recovery systems are fully integrated. Heat circulation piping and distribution are an integral part of our containerized solutions. Insulated piping, pre-plumbing, all connection-ready. The floor plan allows for easy access to all system components, comfortable movement, and efficient service & maintenance. 2G® modules are especially built, not just modified shipping containers. Standard connections and terminations are used throughout to minimize the installation and connection effort. All units are designed for extreme fast integration and very easy operation. Installation time is typically 2 days.



### Your Benefits

- Reduced Cost and decreased Project Lead Time
- Reliability and Top Performance “all-in-one” Factory tested
- Less technical Risk & more economical
- Optimal Solution with significant Advantages for the Owner
- Versatile, flexible, scalable, and unrestrained Mobility



Anaerobic Farm Digester Biogas CHP Power Generation Plant with “Plug & Play” Container Module.



Landfill Gas (LFG) Power Generation Plant with “Plug & Play” Container Module, including Gas Conditioning & Treatment System.

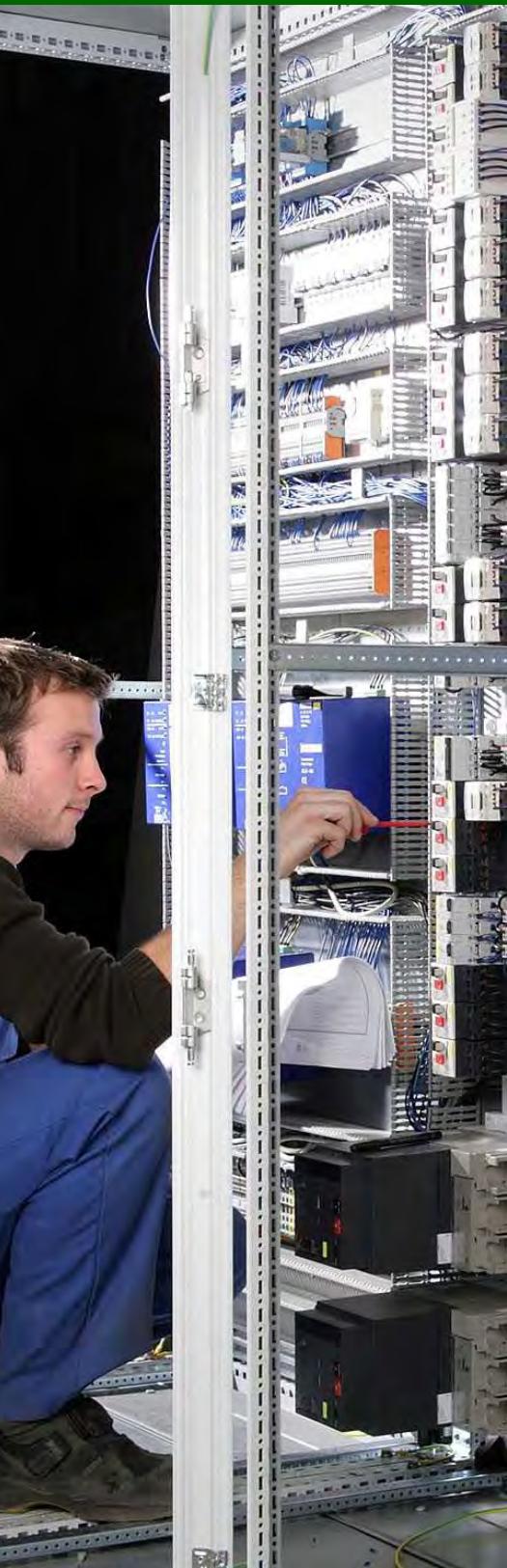


Municipal Dry Anaerobic Digester Biogas CHP Power Generation Plant with “Plug & Play” Container Module, including Gas Conditioning & Treatment System.

# Multiple Process Control

## Total Integration including Paralleling Capability

Advanced CHP Control Technology | Unique Features with Added Value



### Standard Equipment included

GEM is equipped with a fully integrated electronic Governor Control (Speed & Load Sharing, kW / kVAR), and a variety of control modules consisting of:

- Actuators
- 3-Phase Monitoring of Voltage & Current
- Load Management
- Power Function Regulation
- Select Switch for Droop Mode
- Controls for Stability & LoadGain,
- Speed Sensing & Control
- Load Sensor
- Ramp Generator for Ramp Time and Idle
- Digital Generator Control
- Voltage Regulator Sensing & Control
- Rheostat for Control of Speed for Synchronization

The Generator Protection Unit DEIF GPU-3 is a compact microprocessor-based protection relay containing a wide variety of vital functions for advanced synchronous generator protection.

### Multiple Process Control Features for the entire CHP System:

In addition to the basic power generation system & paralleling / synchronization and load management control functions, GEM also controls space ventilation, combustion air flow, adjustments based on ambient air & temperature, gas pressure, gas volumes, gas treatment incl. re-heating, gas & smoke safety devices, flare, communication interface with digester or other customer PLC's, thermal energy & heat extraction management, pumps & hot water circuits, A/C system, space heating, oil replenishing, emissions, catalytic converter, SCR, and much more.

**GEM provides total integration including paralleling capability, grid or load-share mode, precise frequency & voltage regulation, alarm & status message display, protection, output metering, auto-shutdown, auto-restart, and a comprehensive user interface. All mounted inside a NEMA type enclosure.**

- Ammeter
- Undervoltage / Overvoltage
- Wattmeter
- Reverse Power Relay
- Loss of Excitation Relay
- Overcurrent Relay
- Auxiliary CB's, Relays & Timers
- Generator Main CB (Circuit Breaker) electronically operated including Indicator Lights, installed in its own protected Enclosure Panel

- Voltmeter
- Frequency Meter
- Power Factor Meter
- Directional Power
- Reverse VAR Relay
- Negative Sequence
- CT / PT Functions

- Voltage Restraint
- Underfrequency / Overfrequency
- Digital Governor Control
- Synchronization Relay
- Phase Balance Relay
- Ground Fault Relay

### User Interface Protocols



Customers have the option to select Profibus or Modbus configurations. Operators intending to interface with AB PLC's are required to install the AB FLEX I/O PRO-FIBUS adapter or similar network interface translators.

### Cutting Edge Technology

- Fully integrated & Factory tested
- Providing more Capability in less Space
- Enhanced Protection & greater Flexibility
- Comprehensive Functions for Diagnostics



All Functions per CAS/UL & IEEE 1547 Requirements





## CHP Cogeneration Energy Conversion Systems

### Low Emissions & BACT (Best Available Control Technology) Ultra-Low Emissions Capable

All 2G® CHP systems and engines include BACT (Best Available Emissions Control Technology), are in compliance with Federal EPA Rules & Regulations and carrying the voluntary Manufacturers EPA Emissions Certificate of Compliance in accordance with EPA – Subpart JJJJ of Part 60 (Digester Gas, Biogas, LFG, Natural Gas) lean burn Gas Engine (IC Internal Combustion) - 73 FR 3591. All specified emission values < less than / without after treatment. For lower values an Oxidation Catalyst can be installed (optional). For CARB and South California AQMD, emissions can be drastically reduced with 2G®'s SCR Exhaust Gas Treatment Module). Please contact us if you have to comply with specific local regulations and site-specific limitations.

All Data according to full load and subject to technical development, modification and change. Exhaust gas emissions correspond to dry exhaust gas and 10% residual Oxygen O<sub>2</sub>. Lean burn and BACT technology and provide exhaust emissions well below EPA Federal Guidelines & Regulations. Additional emissions treatment and reduction technologies (Oxi-Cat, SCR, De-Nox, etc.) are available as an option if required.

Electrical output based on ISO standard and conditions according to ISO 3046/1, VDE 0530, and to SAE J1349 with respective tolerance. Technical data is based on a gas quality 55% CH<sub>4</sub> and carbon dioxide CO<sub>2</sub> <45% and a heat value of >5 kWh/Nm<sup>3</sup>. For conditions or fuels other than standard, consult 2G-CENERGY®.

Tolerances: electrical output ISO 3046/1, fuel consumption +/- 5%, thermal output +/- 8%. Typical heat data is shown, however no guarantee is expressed or implied. Data will vary due to variations in site and ambient conditions.

All electrical systems comply with DIN, VDE, CE, and CSA certifications, and NEMA / UL compliant designs / configurations. The generator is compliant with international standards & regulations IEC 60034, NEMA MG 1.22, ISO 8528/3, CSA, UL 1446, UL 1004B, DIN 6280-3, VDE 0530, ÖVEM 10, ISO 8528-3, BS 5000, IEC 34, designed and manufactured in an ISO 9001 and ISO 14001 environment.

Gas treatment might be necessary (depending on the actual gas quality). Applicable gas types: Low BTU (weak gases), e.g. Biogas, Landfill Gas, Sewage Gas, Coal Mine Gas. Other specialty gases upon request (High BTU Wellhead Gas, Wood Gas, Syngas, Coke Gas, Pyrolysis Gas).

The Manufacturer reserves the Right to change or modify technical Details without prior Notice.

### Proven Technology incl. Performance Guarantee

- Modular, All-In-One, Fully integrated & Factory tested
- Plug & Play, more Cost-effective, more economical
- Versatile, flexible, scalable, and unrestrained Mobility
- Reliable, proven, with unmatched Quality & Performance



2G CHP Systems are designed, and manufactured in Accordance with all applicable Standards.



2G CENERGY Power Systems Technologies Inc.

205 Commercial Drive

St. Augustine, FL 32092 - USA

Tel.: +1-904-579-3217

Fax: +1-904-406-8727

Email: [info@2g-cenergy.com](mailto:info@2g-cenergy.com)

Website: <http://www.2g-cenergy.com>



## Technical data

1200 kWel; 480 V, 60 Hz; Acc. to gas analysis

## Design conditions

Comb. air temperature / rel. Humidity:	[°F] / [%]	77 / 60
Altitude:	[ft]	328
Exhaust temp. after heat exchanger:	[°F]	356
NO <sub>x</sub> Emission (tolerance - 8%):	[g/bhph]	1,03

## Genset:

Engine:	<b>TCG2020V12</b>	
Speed:	[1/min]	1500
Configuration / number of cylinders:	[ - ]	V / 12
Bore / Stroke / Displacement:	[in] / [in] / [in <sup>3</sup> ]	6,7 / 7,7 / 3241
Compression ratio:	[ - ]	13,5
Mean piston speed:	[ft/s]	32,2
Mean lube oil consumption at full load:	[lb/hr]	0,5
Engine-management-system:	[ - ]	TEM EVO
Generator:	<b>Marelli MJB 450 LB4</b>	
Voltage / voltage range / cos Phi:	[V] / [%] / [-]	480 / ±5 / 1
Speed / frequency:	[1/min] / [Hz]	1800 / 60
Gear box:	<b>Eisenbeiss GU 320</b>	
Lube oil volume of gear box:	[gal(US)]	15

## Energy balance

Load:	[%]	100	75	50
Electrical power COP acc. ISO 8528-1:	[kW]	<b>1200</b>	<b>900</b>	<b>600</b>
Engine jacket water heat:	[BTU/min±8%]	35973	26866	19182
Intercooler LT heat:	[BTU/min±8%]	5806	4269	2732
Lube oil heat:	[BTU/min±8%]			
Exhaust heat with temp. after heat exchanger:	[BTU/min±8%]	32273	26525	19922
Exhaust temperature:	[°F ±43°F]	856	898	943
Exhaust mass flow, wet:	[lb/hr]	14524	10983	7602
Combustion mass air flow:	[lb/hr]	13391	10113	6991
Radiation heat engine / generator:	[BTU/min±8%]	2334 / 1935	2220 / 1651	2163 / 1480
Fuel consumption:	[BTU/min+5%]	163587	125565	88510
Electrical / thermal efficiency:	[%]	41,8 / 41,7	40,8 / 42,5	38,6 / 44,2
Total efficiency:	[%]	83,5	83,3	82,8

System parameters <sup>1)</sup>

Ventilation air flow (comb. air incl.) with ΔT = 15K	[lb/hr]	67200
Combustion air temperature minimum / design:	[°F]	41 / 77
Exhaust back pressure from / to:	[inWC]	12 / 20
Maximum pressure loss in front of air cleaner:	[inWC]	2
Zero-pressure gas control unit selectable from / to: <sup>2)</sup>	[inWC]	8 / 80
Pre-pressure gas control unit selectable from / to: <sup>2)</sup>	[psi]	7 / 145
Starter battery 24V, capacity required:	[Ah]	430
Starter motor:	[kWel.] / [VDC]	15 / 24
Lube oil content engine / base frame:	[gal(US)]	54 / 135
Dry weight engine / genset:	[lb]	11200 / 28551

Cooling system <sup>5)</sup>

Glycol content engine jacket water / intercooler:	[% Vol.]	0 / 35
Water volume engine jacket / intercooler:	[gal(US)]	29 / 5,3
KVS / Cv value engine jacket water / intercooler:	[ft <sup>3</sup> /h]	1483 / 1059
Jacket water coolant temperature in / out:	[°F]	176 / 199
Intercooler coolant temperature in / out:	[°F]	122 / 127
Engine jacket water flow rate from / to:	[gpm]	159 / 247
Water flow rate engine jacket water / intercooler:	[gpm]	189 / 154
Water pressure loss engine jacket water / intercooler:	[psi]	15 / 20

1) See also "Layout of power plants":

2) See also Techn. Circular 0199-99-3017

5) Gear oil cooling within intercooler coolant circuit

Frequency band f [Hz]	25	31,5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	L <sub>WA</sub> [dB(A)]	S [m <sup>2</sup> ]
Air-borne noise <sup>3)</sup> L <sub>W,Terz</sub> [dB(lin)]	94,1	94,8	98,2	100,6	106,2	109,1	107,7	108,6	106,1	115,4	115,2	114,9	108,7	110,3	109,6	108,9	109,3	108,3	108,2	107,7	107,1	108,7	103,6	102,4	114,3	107,1	101,5	103,9	98,3	132,1 ±4dB(A)	15,5
Exhaust noise <sup>4)</sup> L <sub>W,Terz</sub> [dB(lin)]	114,2	116	124,6	115,9	120	129	125,3	134,1	125,3	130	128,4	128,2	126,4	125,8	125	119	117,8	116,6	117,7	117,6	116,3	115,5	114,6	113,7	114,9	113,9	113,4	112,9	111,1	120,8 ±3dB(A)	122 <sup>5)</sup>

3) DIN EN ISO 3746 (σ<sub>R0</sub>=±4 dB)

4) Measured in exhaust pipe (f ≤ 250Hz: ±5dB; f &gt; 250Hz: ±3dB)

L<sub>WA</sub>: Sound power levelS: Area of measurement surface (S<sub>0</sub>=1m<sup>2</sup>)

5) DIN 45635-11, Appendix A

Übertemperatur - Temperature rise	F
Isolationsklasse - Insulation	H
Schutztart - Protection degree	IP 23
Leistungsfaktor - Power factor	0,8
Schleuderdrehzahl - Overspeed	2250 rpm
Klemmenzahl - Number of terminals	6
Kühllufttemperatur - Cooling temperature	40 °C
Kühlart - Method of cooling	IC 01
Kühlluftmenge - Cooling air volume	1,8 m³/s
Aufstellhöhe - Altitude at side	1000 m
Gewicht - Weight	4000 kg
Trägheitsmoment - Inertia	44,6 kgm²
Gesamtverluste - Total losses	42,9 kW
Strahlungswärme - Radiated heat	2,7 kW

FREQUENZ - FREQUENCY		Hz	60
SPANNUNG - VOLTAGE (+/-5%)		V	480
STROM - CURRENT		A	1790
NENNLEISTUNG - RATED POWER	@ 0,8 p.f.	kVA	1488
LEISTUNG - RATING	kVA	1488	1261
LEISTUNGFAKTOR - POWER FACTOR	p.f.	0,8	0,95
WIRKUNGSGRAD - EFFICIENCY - (%)		1200	1262
		110%	96,6
		100%	96,5
		90%	96,5
		75%	96,3
		50%	95,5
		25%	92,3
			97,2
			97,4
			97,3
			97,2
			97,1
			96,9
			96,9
			95,9
			92,7
			92,8
		induktiv - inductive	
		kapazitiv - capacitive	

Reaktanzen - Reactance (%)	Synchronlängsreaktanz - Synchronous direct axis Synchronquerreaktanz - Synchr. quadrature axis Transientlängsreaktanz - Transient direct axis Transientquerreaktanz - Transient quadrature axis Subtransientlängsreaktanz - Subtransient direct axis (sat.) Subtransientquerreaktanz - Subtransient quadr. Axis (sat.) Inversreaktanz - Negative sequence (sat.) Nullreaktanz - Zero sequence	Xd Xq Xd' Xq' Xd" Xq" X2 X0	179 87 17,2 87 7,8 8,3 8,1 2,1
Zeitkonstanten - Time constants (s)	Leerlauf - Open circuit Transient - Transient Subtransient - Subtransient Gleichstrom - Armature	T'd0 Td' Td" Ta	3,3 0,31 0,018 0,03
Kurzschlussdaten - Short circuit data			
Anfangskurzschlusswechselstrom 3~ (kA) - Initial short circuit current 3~ (kA)	Ik"	28,7	
Stosskurzschlussstrom 3~ (kA) - Max. peak current 3~ (kA)	Is	58,3	
Dauerkurzschlussstrom 3~ (kA) - Sustained short circuit current 3~ (kA)	Ik	7,6	
Leerlauf-Kurzschluss-Verhältnis - Short circuit ratio	Kc	0,59	
Stosskurzschlussmoment 2~ (kNm) - Initial short circuit torque 2~ (kNm)	Mk2	139,8	
TVD bei Aufschaltung der Nennlast (%) - TVD at rated load step (%)	ΔU	15,0	
Max. Laststoss für ΔU = 15 % - Max. load step at low PF for TVD = 15 %	ΔSmax	1440 kVA	

# EXHIBIT 5

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*LOUREIRO ENGINEERING ASSOCIATES, INC.  
ENVIRONMENTAL ASSESSMENT, DATED  
FEBRUARY, 2016*

# **Environmental Assessment**

## **Proposed Anaerobic Digester and Combined**

### **Heat and Power Project**

## **Quantum Biopower Southington, LLC**

**Southington, Connecticut**

**February 2016**

**Prepared for**

**Quantum Biopower Southington, LLC**  
**49 DePaolo Drive**  
**Southington, Connecticut**



**Loureiro Engineering Associates, Inc.**

100 Northwest Drive • Plainville, CT 06062 • 860.747.6181 • Fax 860.747.8822 • [www.Loureiro.com](http://www.Loureiro.com)

An Employee-Owned Company

Comm. No. 82SI501.016

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## **Environmental Assessment**

**Anaerobic Digester and Combined Heat and Power Project**  
**49 DePaolo Drive**  
**Southington, Connecticut**

**February 4, 2016**

### **Prepared for**

**Quantum Biopower Southington, LLC**  
**49 DePaolo Drive**  
**Southington, Connecticut**

### **Prepared by**

**LOUREIRO ENGINEERING ASSOCIATES, INC.**  
**100 Northwest Drive**  
**Plainville, Connecticut 06062**

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## **Appendices**

- Appendix A**      **Permits**
- Appendix B**      **Water Availability**
- Appendix C**      **Geology**
- Appendix D**      **Flood Plains**
- Appendix E**      **Photo-Documentation**
- Appendix F**      **State Historic Preservation Office Letter**
- Appendix G**      **Noise Evaluation Report**
- Appendix H**      **Traffic**
- Appendix I**      **CT DEEP NDDB Mapping**

## 1. PROJECT INTRODUCTION

Quantum Biopower Southington, LLC (Quantum) is proposing to construct an Anaerobic Digestion (AD) facility and a Combined Heat and Power (CHP) unit (hereinafter referred to as “Project”) on a portion of property currently operated as a clean wood volume reduction, leaf compost and mulch manufacturing facility located at 49 DePaolo Drive, Southington, Connecticut (hereinafter referred to as “the overall parcel”). Present operations at the overall parcel include grinding, chopping, crushing, coloring and processing of all grades of untreated wood, brush, trees, stumps, leaves and other ground clearing by-products.

Loureiro Engineering Associates, Inc. (Loureiro) prepared this Environmental Assessment (EA) to support Quantum’s submission of a Petition for Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the Project.

The AD activity will generate electrical power through an on-site CHP unit. The CHP will be fueled from biogas generated from the AD process and will distribute power through virtual net metering, which process is regulated separately by the Public Utilities Regulatory Authority (PURA).

Permit applications for the Project have been submitted to the Town of Southington Planning and Zoning Commission and presented at the required hearings. The Project was permitted by the town through a Special Use Permit and a Site Plan modification, which applications were approved January 7, 2014 (SPU-531) and November 17, 2015 (SPR-1667.2) respectively.

Two separate permit applications for the Project are pending through the Connecticut Department of Energy & Environmental Protection (DEEP). The first is a Permit Application for Construction and Operation of a Solid Waste Facility, which application includes provisions for clean wood volume reduction, leaf composting and the AD and CHP facilities. This permit application is pending and based upon conversations with the permit writer, will be public noticed through a Notice of Tentative Determination to Approve shortly.

The second DEEP permit application is a Permit Application for Stationary Sources of Air Pollution - New Source Review. This application is specific to the AD and CHP facilities and covers the air emissions and odor control systems associated with the AD receiving and processing equipment and the CHP emissions. This application is pending.

Additional permits for the project are described in Section 3.0 of this report. A list of permits specific to the project can be found in Appendix A.

## **2. EXISTING CONDITIONS**

### **2.1 Project Location**

The Project is located at 49 DePaolo Drive, Southington, Connecticut. The overall parcel (56.57 acres) is comprised of 37.24 acres of land owned by B&R Corporation (a sister company to Quantum) and 19.33 acres of land leased from the Town of Southington, which area is located on the former DePaolo Drive landfill. The AD facility and the CHP unit will occupy approximately 2 acres within the land owned by the B&R Corporation. The proposed facility will occupy less than 4% of the overall parcel. The proposed development will be located on the south central portion of the overall parcel as shown on Figure 1, Site Location Plan.

The topography of the Site is generally flat at an elevation of about 220 feet above mean sea level. The Site is bordered by industrial and commercial properties on the north, west and south with a small portion of residential along the east. The related residential structures on the adjoining property to the east are over 1,000-feet from the AD and CHP Site.

There is a treed buffer along all sides of the overall parcel. Landscaped berms are provided in select areas as additional screening measures.

### **2.2 Site Access**

Access to the site is restricted to one gated access point supervised by an entrant official. Access can be obtained through DePaolo Drive which runs north from West Queen Street to the Southeast corner of the overall parcel as shown on Figure 1, Site Location Plan.

### **2.3 Wetland and Watercourses**

Wetland locations within and abutting the overall parcel were field delineated by a Soil Scientist and located by a land surveyor. Wetland delineation flags placed on the southeast corner of the overall parcel were slightly within the property boundary. A 50 foot upland review area was established in this area and was designated to remain undeveloped to maintain the nature of the wetland feature.

Wetland delineation flags were also placed beyond the property limits of the overall parcel on the northeast, northwest, and southwest corners. These areas were located greater than 50 feet from the property lines; therefore no upland review areas impact the parcel. While stormwater runoff from the overall parcel contributes to these wetland areas, they remained unchanged following the development of the overall parcel.

Wetland delineations can be found in Figure 2, Existing Conditions Plan.

No water courses are located within the overall parcel. Eight Mile River is located approximately 425 feet to the west of the overall parcel, at its closest point.

## 2.4 Water Supply Areas

Based upon a review of the DEEP Aquifer Protection Areas mapping for Southington Connecticut, dated December 28, 2015, the closest Level A aquifer protection area is approximately 2 miles to the east. There are three private water wells on adjacent parcels with the closest well approximately 600 feet from the AD and CHP site. There is a private supply well located on the overall parcel, which will be abandoned for domestic consumption, but may be used for process waters to serve non-domestic operations at the site. Public water service has been extended into the site to provide domestic water service and fire protection. An Aquifer Protection Map can be found in Appendix B.

Groundwater quality, according to the Connecticut Water Quality Standards and Classifications (WQS), is designated as GB throughout the overall parcel as shown on the Water Availability map found in Appendix B. A GB classification defines the condition of the water as “assumed to have some degradation and not suitable for drinking water without treatment.”

Public water was made available to the overall site through an extension of the public water supply system from West Queen Street to the site.

## 2.5 Water Quality

Surface waters located in the vicinity of the project were assessed as defined below.

### 2.5.1 Surface Waters

No surface water bodies are present on the overall parcel. There are three surface water bodies located adjacent to the overall parcel, the closest of which is approximately 600-feet from the AD and CHP site. These water bodies are designated as Class A, supporting potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply, and navigational uses, while Eight Mile River is designated as Class B, which designation is not suitable for drinking water supply.

### 2.5.2 Site Stormwater

Construction on the overall parcel is currently under way and construction of the AD facility will be initiated upon acquisition of all applicable permits. A Stormwater Pollution Control Plan

(SWPCP) for the partially completed and proposed construction activities, dated January 2013 and revised January 2014, was developed by Loureiro to provide the necessary water quality assurances during construction at the site by the various site contractors and to ensure compliance with the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Construction General Permit). The Construction General Permit went into effect October 1, 2013, expires September 30, 2018, and it is current for this site (Permit No. GSN002420). The Construction General Permit and the related SWPCP covers the proposed construction activities associated with the Project. The SWPCP has been prepared accordance with the requirements of the Construction General Permit and guidance provided by DEEP. The SWPCP identifies the potential sources of stormwater pollution and provides recommendations for implementing best management practices (BMPs) to reduce these pollutants.

A Stormwater Pollution Prevention Plan (SWPPP) for the facility dated September 2015, was developed by Loureiro to provide the site operators with the appropriate information and guidance to ensure that stormwater discharges associated with industrial activities conducted at the Site are properly managed in compliance with the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Stormwater Associated with Industrial Activity (Industrial General Permit). The Industrial General Permit went into effect on October 1, 2011 and expires on September 30, 2016. A timely renewal application will be submitted to DEEP. The permit for this site is current (Permit No. GSI002740). The SWPPP has been prepared according to the requirements of the Industrial General Permit and guidance provided by DEEP. The SWPPP identifies the potential sources of stormwater pollution and provides recommendations for implementing best management practices (BMPs) to reduce these pollutants.

The overall parcel has five drainage areas. Four of the drainage areas have point source discharges of stormwater off-site. The fifth drainage area infiltrates on the Site. It is noteworthy that the Site relies upon infiltration and has been developed with three separate infiltration basins. Stormwater discharges from the outfalls are unlikely, due to the conservative nature of the design and the highly conductive soil conditions present.

### 2.5.3 Sanitary Utilities

Prior to the construction of the AD facility and the CHP unit, the office building is temporarily discharging domestic sanitary waste to an onsite septic system constructed in 2013 as a temporary measure. A recently constructed sanitary sewer and sewage pump station, which was extended from West Queen Street to the site, will eventually collect all sanitary waste within the

overall parcel and discharge it to the Southington Water Pollution Control Facility. The temporary onsite septic system will be properly closed in accordance with applicable regulations.

## **2.6        Historic and Archaeological Resources**

Historic and archaeological concerns at the subject site should be minimal since the former use of the property was an old gravel mine. A significant amount of material was removed from the site during the gravel operations resulting in a substantial cut of the original grades. No buildings or structures existed when the property was redeveloped. Please see Section 3.7 for additional information.

## **2.7        Geology and Soils**

Soils classifications encompassing the site include WGB, (Windsor loamy sand, 3 to 8 percent slopes), and Udorthents-Pits complex, gravelly.

WGB is a gently sloping and excessively drained soil. The permeability of this soil is rapid. Available water capacity is low, and runoff is medium.

Udorthents are found in areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. This complex consists of moderately well drained to excessively drained soils that have been disturbed by cuffing or filling. Udorthents-Pits complex soils are consistent with the historical use of the site as a gravel mining operation.

Bedrock is classified as TRnh, (New Haven Arkose), which is a reddish poorly sorted arkose.

A Bedrock classification map can be found in Appendix C.

## **2.8        Floodplain Areas**

The site is located in an area determined to be outside the 0.2% annual chance flood plain as indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Hartford County, Connecticut. Because of this designation, no special design elements are necessary due to flooding concerns. In addition, no impacts to floodplains are associated with the proposed project. The area of the site is mapped on FIRM Panels 0468F and 0469F, both dated September 26, 2008.

A cropped copy of the FEMA maps showing the site location can be found in Appendix D.

## **2.9        Recreational Areas**

The nearest recreational areas to the site are the Lake Compounce Amusement Park, which has: (i) an RV, tent and cabin camping area located approximately 0.35 miles to the northwest of the Site; (ii) and the amusement park proper, which is located approximately 0.63 miles to the west of the Site. North Ridge Golf Club is located approximately 0.45 miles to the south of the Site and Highland Golf Range is located 0.26 miles to the east of the Site.

## **2.10      Noise**

A Noise Evaluation Report was prepared for the Project by HMB Acoustics LLC of Avon, Connecticut. Existing background noise measurements were acquired at the site, and in surrounding areas. These levels measured between 45-50 dBA, which are acceptable under the DEEP noise regulations.

## **2.11      Lighting**

The primary access road to the Site, DePaolo Drive is not equipped with street lighting. Existing Site lighting is limited to the entrance area (scale house and scale), the office facilities and the maintenance facility. All luminaires are wall mounted light-emitting diode (LED) fixtures.

## **2.12      Traffic**

A traffic report written in 2012 by F. A. Hesketh & Associates indicated that the current ongoing site activities would produce a maximum of 12 trucks per hour of traffic during peak hours. The report stated that a review of the Connecticut Department of Transportation (DOT) traffic volume count at Rt. 229 north of Queen Street indicated that traffic volumes had decreased between 2006 and 2009 from an average daily traffic (ADT) of 27,900 to an ADT of 22,200. This indicated that the impact from the current ongoing site activities would likely not have a significant impact on this area.

### **3. EFFECTS ON THE ENVIRONMENT**

#### **3.1 Proposed AD and CHP Project**

The AD facility will be designed and operated in a manner that will advance the State of Connecticut's goal to maximize the amount of Source-Separated Organic Materials (SSOM), including but not limited to food scraps, food processing residue, liquid beverages, fat/oil/grease (FOG) and yard trimmings, composted and minimize the amount of SSOM that must be disposed through the municipal solid waste (MSW) stream. The proposed anaerobic digester consists of a 52,560 ton per year system comprised of a wet fermentation process that will generate biogas from a continuous process.

The AD feedstock will consist exclusively of SSOM, which is broken down by microorganisms in the absence of oxygen over a 30-day digestion process. The resulting digestate will be pretreated to initially remove the digested solids, with the filtrate then further treated and discharged to the Town of Southington Water Pollution Control Facility, as further described in Section 3.5.3. The solids removed from the digestate will be beneficially reused as a soil amendment by others. The AD will generate biogas as a fuel source to generate energy on-site through the CHP which will be distributed through virtual net metering, thereby advancing the state's goal toward procuring 20% of its electric power from clean energy sources by the year 2020 (Public Act 13-303, An Act Concerning Connecticut's Clean Energy Goals). The AD facility will be sited and designed to accomplish this in a manner that will be protective of the resources of the state.

Photographs of the AD and CHP site are included in Appendix E along with an aerial view of the overall parcel and surrounding area, compliments of Google Earth™.

Construction of the AD facility will begin upon the receipt of required approvals and permits, including Connecticut Siting Council approval, the air permit, and the solid waste permit.

#### **3.2 Local, State and Federal Land Use Plans**

The Project is consistent with local, state, and federal land use plans, including the Capitol Region Council of Government's (CRCOG) 2014 Regional Plan of Conservation and Development and the mission of the Sustainable Capitol Region, which promotes sustainability within the region.

Further, the Project is consistent with the State's Solid Waste Management Plan (SWMP) in diverting food wastes currently disposed in Resource Recovery Facilities and Landfills in the State. The SWMP has an objective to significantly increase the amount of waste that is recycled.

### **3.3        Wetlands and Watercourses**

No wetlands or watercourses will be directly impacted by the development of the AD facility and the CHD unit. The closest flagged wetland area, located on the southeast corner of the parcel, is greater than 500 feet away.

### **3.4        Water Supply Areas**

Water supply areas will not be affected by the proposed development. A public water line has been extended to the site to provide domestic water for the site and the adjoining industrial parcel located to the east, which is currently serviced by an on-site supply well.

All wastewaters generated by the AD will be discharged directly to the new sanitary sewer extended to the site specifically to facilitate the AD facility.

### **3.5        Water Quality**

Surface waters located in the vicinity of the project are assessed below.

#### **3.5.1      Surface Waters**

The AD and CHP area will not have any negative impact on the surface waters located on the adjoining parcels. There are no surface water or groundwater discharges other than stormwater, which is further described below. All wastewaters generated from the AD will be discharged to the sanitary sewer, as further described in Section 3.5.3.

#### **3.5.2      Site Stormwater**

Prior to and throughout the duration of construction of the AD facility and the CHP unit, sedimentation and erosion controls will be installed and maintained in accordance with the SWPCP and the related Construction General Permit referenced in Section 2.5.2.

Runoff from the proposed facilities will be directed to a sedimentation basin equipped with a forebay to enhance settling and promote infiltration. Best management practices, such as the sweeping of paved areas and good housekeeping measures, will be implemented to help prevent potential pollutant sources. Wash water from truck rinsing will be contained within the receiving building. No process water will be combined with storm water runoff.

Upon completion of the construction activities associated with the AD and CHP, the Industrial General Permit registration and the SWPPP, referenced in the previous section of this document, shall be modified to incorporate the added activities. BMPs shall be similarly implemented to ensure consistency with the Industrial General Permit thereby mitigating adverse impacts to the local water quality.

### 3.5.3 Sanitary Utilities

A recently constructed sanitary sewer and sewage pump station, which was extended from West Queen Street to the site, will eventually collect all sanitary waste within the overall parcel and discharge it to the Southington Water Pollution Control Facility. Discharge of wastewaters generated from the AD process will be pretreated and discharged to the sanitary sewer under a DEEP General Permit for Miscellaneous Discharges of Sewer Compatible (MISC) Wastewater, thereby providing additional assurances that water quality will be held paramount.

### 3.6 Air Quality

Loureiro conducted a review of federal and Connecticut air pollution regulations to determine the regulations that would apply to the proposed AD facility. The following table provides the AD facility's potential uncontrolled emissions and proposed allowable emissions.

**TABLE 1: SUMMARY OF UNCONTROLLED POTENTIAL AND PROPOSED ALLOWABLE EMISSIONS**

<b>Pollutants</b>	<b>Potential Uncontrolled Emissions (tpy)</b>			<b>Proposed Allowable Emissions (tpy)</b>
	<b>Anaerobic Digestion System (U1b)</b>	<b>Flare (C1c)</b>	<b>CHP Unit (U1c)</b>	
<b>Criteria Pollutants</b>				
PM	N/A	1.00	0.42	1.00
PM <sub>10</sub>	N/A	1.00	0.16	1.00
PM <sub>2.5</sub> Total	N/A	1.00	0.16	1.00
SO <sub>x</sub>	N/A	2.53	0.05	2.53
NO <sub>x</sub>	N/A	3.99	14.47	14.47
CO	N/A	0.15	35.37	0.64
VOC	N/A	1.16	6.43	1.16
<b>Greenhouse Gases</b>				
CO <sub>2</sub>	3,066	8,703	7,363	8,703
CH <sub>4</sub>	2,075	20.8	17.56	20.8
N <sub>2</sub> O	N/A	0.07	0.06	0.07
CO <sub>2</sub> e	54,946	9,242	7,820	9,242
<b>Hazardous Air Pollutants</b>				
Hydrogen sulfide	13.57	0.014	N/A	0.014
Aggregate Federal HAPs	N/A	N/A	6.60	0.26

Considerations and measures taken to address odors and emissions are discussed below.

The receiving operation is a potential source of odors generated from the receiving and processing of the SSOM. Receiving operations will be performed within an enclosed site building. Trucks will enter the building through an automated rollup door and back up to a reception pit. The outer door will close after the truck enters to minimize noise, odor, and visibility during the unloading process. The receiving area is separated from the remaining building space by interior walls and doors.

Odors generated from the SSOM will result from a small concentration of a large number of various compounds including reduced sulfur compounds as well as volatile organic compounds. No one predominant compound is expected to be responsible for odors. Odors will be controlled through a capture and treatment system. Air will be continually drawn from within the building to achieve a slight negative pressure within the building to prevent fugitive odors from escaping.

The extracted air will pass through an activated carbon-based odor control system, which will remove virtually all odors from the air stream prior to exhausting to atmosphere.

The odor control system will consist of three main components; a pre-filter, a centrifugal fan, and a two stage activated carbon system. Any moisture or grease particulates will first be removed in the pre-filter prior to the inlet of the fan. The centrifugal fan will provide the motive force to pull the air from the source through the pre-filter and then through the two layer carbon adsorption unit. The air will enter the bottom plenum of the adsorption vessel, flow upward through a 3' deep layer of carbon, into the interstitial plenum, through another 3' deep top layer of carbon, and then up and out to atmosphere through the no-loss stack. The bottom layer of carbon consists of a high hydrogen sulfide capacity carbon that has approximately six times the capacity for hydrogen sulfide as virgin activated carbon. The top layer of carbon is specifically selected for large molecular weight organic odors. This assures that the air leaving the filter is virtually odor free. The ventilation and odor control will be shut down for the replacement of the carbon, which is anticipated to occur every five years.

The biogas produced by the anaerobic digestion process will primarily be utilized to generate heat and electricity through the operation a 2G Cenergy 1,200 kWe CHP unit consisting of a MWM model TCG2020V12 engine. The engine will be equipped with an oxidization catalyst to reduce emissions of carbon monoxide and volatile organic compounds including organic hazardous air pollutants (HAPs). An enclosed ground flare will be employed for the disposal of biogas when it is not utilized in the CHP or when it is not operating due to planned maintenance or other causes. The CHP and flare will not operate concurrently. Prior to utilization by the CHP or disposal by the flare, the biogas will be conditioned by a biological biogas scrubber to decrease the concentration of hydrogen sulfide to at least 200 ppm. Biogas utilized by the CHP only will receive secondary conditioning by an active carbon filter to further decrease the hydrogen sulfide concentration to at least 5 ppm.

### 3.7        **Historic and Archaeological Resources**

As stated in section 2.6, historic and archaeological concerns at the subject site should be minimal since the former use of the property was an old gravel mine. A significant amount of material was removed from the site during the gravel operations resulting in a substantial cut of the original grades. No buildings or structures existed when the property was redeveloped.

A request for a historical site evaluation of the parcel proposed for the use of the AD and CHP was submitted to Dr. Brian Jones of the University of Connecticut on December 14th, 2015. Mr. Jones response to our inquiry indicated that the Project is expected to have *No Effect* on

previously unidentified archaeological or historical resources. A copy of this correspondence is included in Appendix F.

A SHPO Cover Sheet and supporting documentation was also submitted to the State Office of Historical Preservation, One Constitution Plaza, Hartford, Connecticut on December 16th, 2016. As of January 11th, 2016, no response has been received. A copy of the submittal package can be found in Appendix F.

### **3.8 Recreational Areas**

Due to the significant separation from the Site and the Site screening, no recreational areas would be impacted by the Project.

### **3.9 Noise**

A Noise Evaluation Study was prepared for the project by HMB Acoustics LLC of Avon, Connecticut. Noise modelling was completed to ascertain the levels of noise at the adjacent property lines. Based upon the zoning designations and actual uses in place on the adjacent parcels, the calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of Connecticut Noise Regulations when projected to the property lines.

A copy of the report can be found in Appendix G.

### **3.10 Lighting**

Additional lighting for the AD facility shall be provided. Luminaires shall be dark-sky LED fixtures wall mounted to the proposed building structures. Lighting distribution shall be limited to the Site and will not spill over the boundaries of the owned and leased parcels.

### **3.11 Traffic**

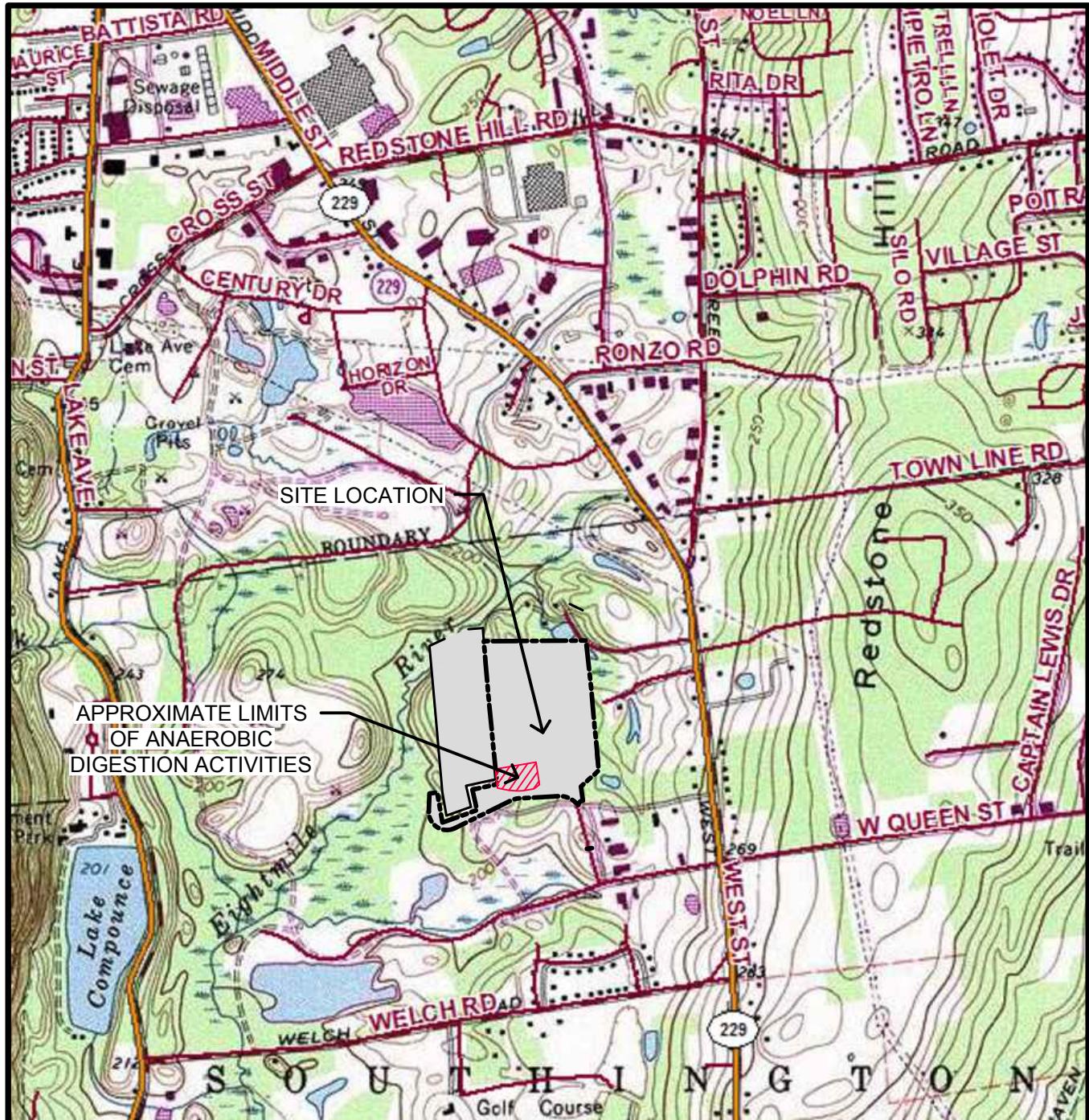
A traffic volume analysis was completed by F.A. Hesketh & Associates on December 2, 2013 which included the additional estimated impact of traffic volume due to the proposed AD facility and the CHP unit. The proposed expanded operation was projected to add an additional one to two peak hour truck trips per day. The operator of the facility reported that over a six month period, the facility had an average of 12 peak hour trips per day, which was approximately 50% less than what Hesketh estimated in their 2012 traffic report. They concluded that the actual plus the proposed peak hour trips per day would be less than the original estimate in 2012 and that there would be no significant impacts on traffic operations in the local road network.

A copy of the Hesketh letter report, dated December 2, 2013, can be found in Appendix H.

#### **4. CONCLUSIONS**

Based upon the findings of this EA, the Project will comply with DEEP air, solid waste and water quality standards through a variety of water and air permits issued through the DEEP and will not have a substantial adverse effect on existing environment and ecology, nor would it affect the scenic, historic and recreational resources in the vicinity.

## **Figures**



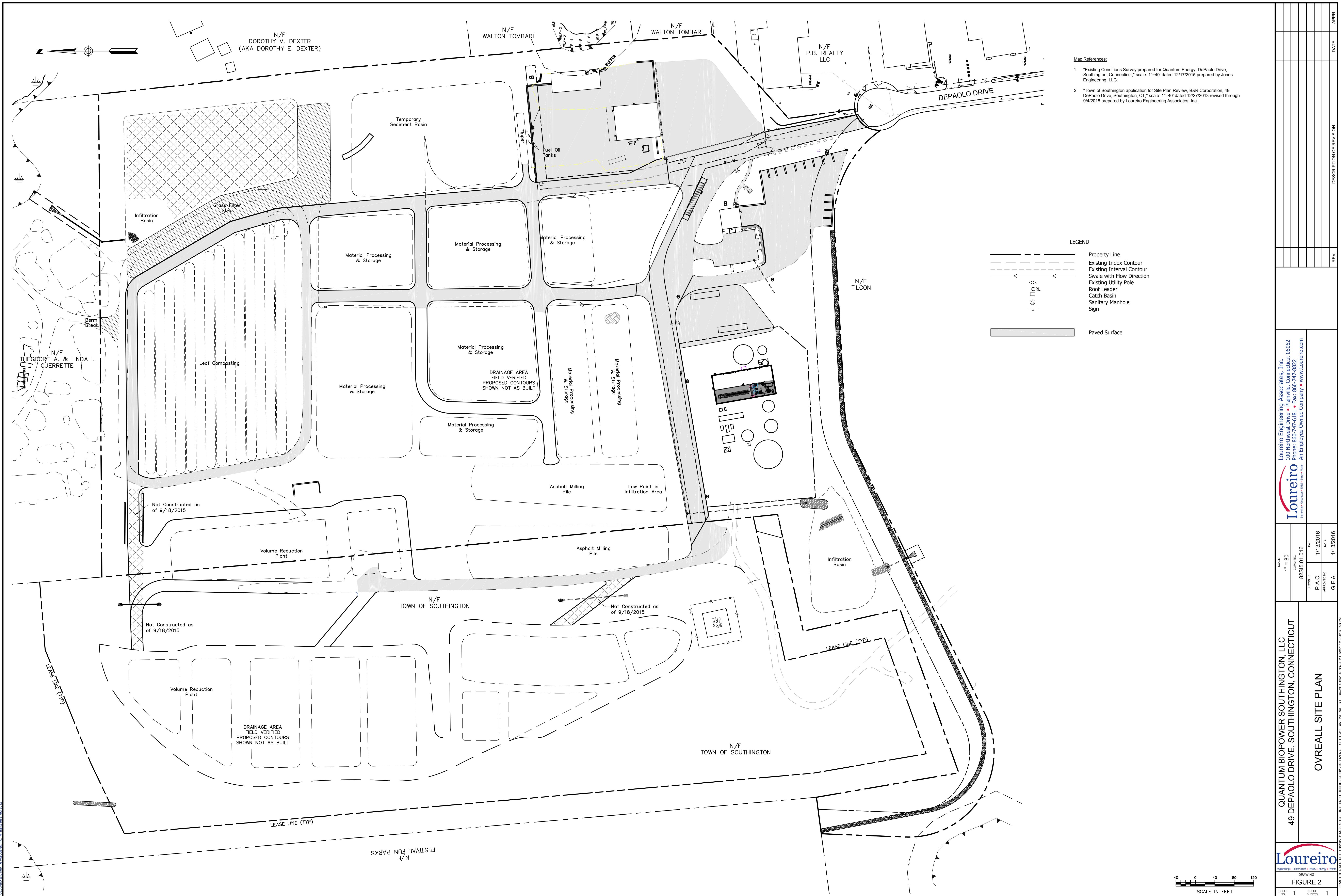
MAP REFERENCE:

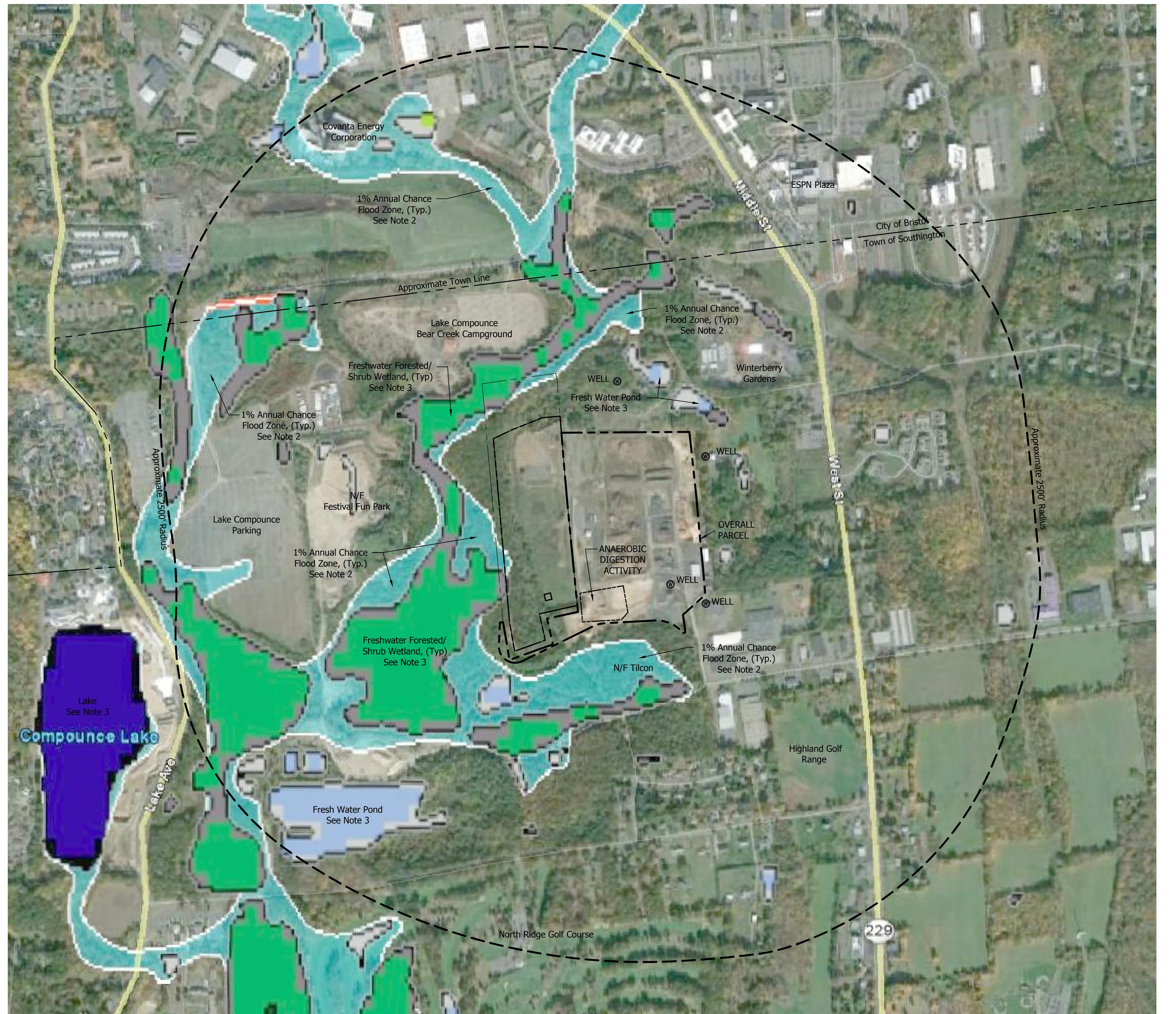
Section of the USGS 7.5 minute series topographic map for Bristol, CT, dated 1966, photo-revised 1984 printed from TOPO! © 1998 Wildflower Productions.

750 0 750 1500 2250

SCALE IN FEET

<b>Environmental Assessment</b> <b>Associated with Anaerobic Digestion Activities</b> <b>Quantum Biopower Southington, LLC, 49 DePoalo Dr., Southington, CT</b>	
<b>SITE LOCATION MAP</b>	
Comm.No.	82SI5.01.016
<b>FIGURE 1</b>	





LEGEND

Property Line

Town Line

Potable Well (Approximate Location)

Background image from Google Earth. Image date October 25, 2014  
Flood zones depicted hereon from kmz file developed by FEMA National Flood Hazard Layer (NFHL) .  
Wetlands depicted hereon from kmz file developed by the National Fish and Wildlife Service.

DESCRIPTION OF REVISION	

# Quantum Biopower

10

8250  
DRAWN BY  
P.A.C.  
APPROVED BY  
G.F.A.

# SURROUNDING FEATURES MAP

ureiro  
Construction • EH&S • Energy  
City Services • Laboratory  
DRAWING  
FIGURE 3  
NO. OF  
SHEET(S) 1



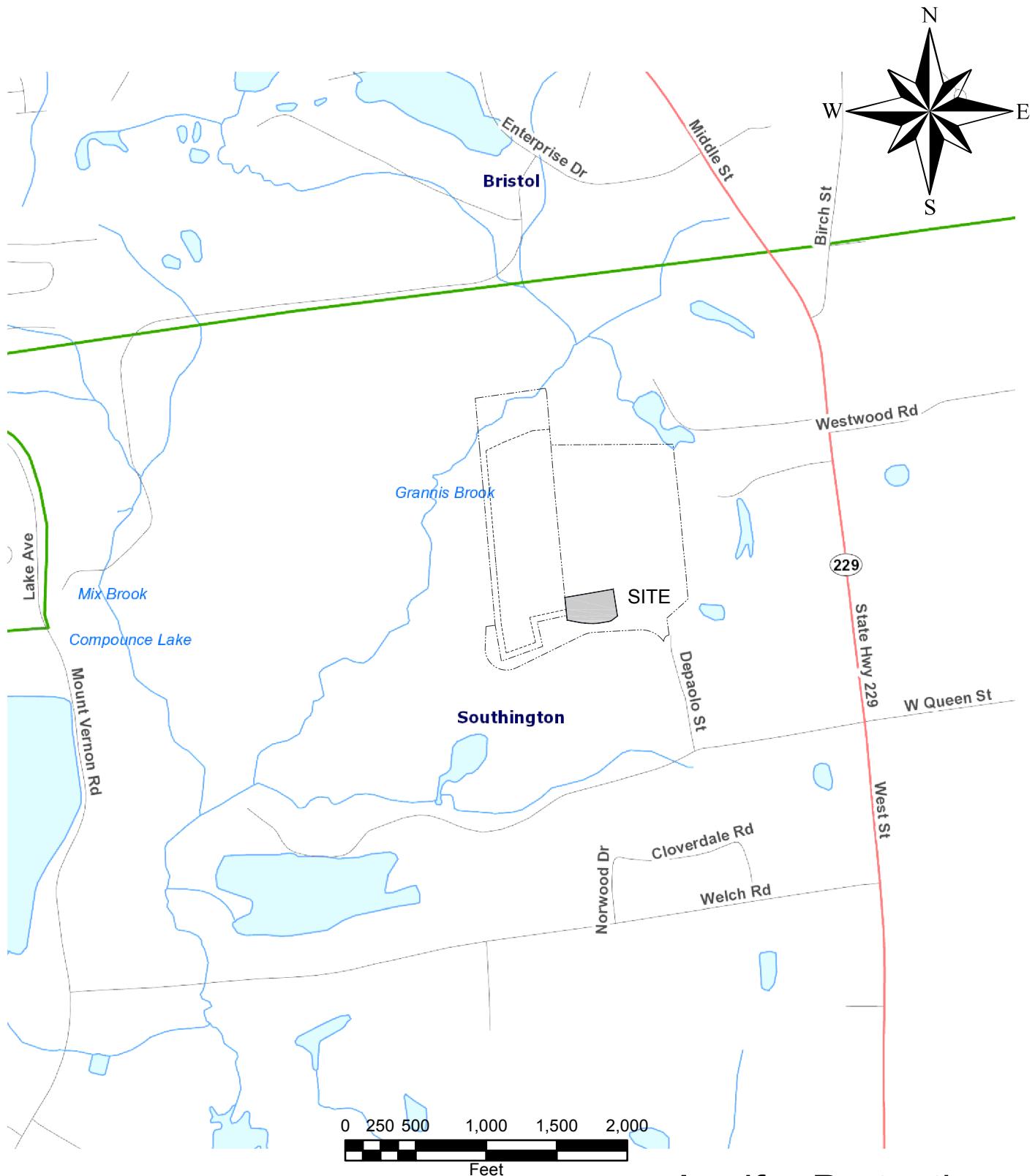


## **Appendices**

## **Appendix A Permits**

Summary of Project Permit Status				
Permit Description	Issuing Authority	Submittal Date	Issuance Date	Permit No. (if applicable)
IWWC Approval - Overall Site	Southington		4/30/2014	NA
Special Permit Use - Overall Site	Southington		1/7/2014	SPU-531
Site Plan Modification - AD	Southington		11/17/2015	SPR-1667.2
General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities	DEEP	1/17/2013	4/3/2013	GSN002420
Permit to Construct and Operate a Solid Waste Disposal Facility	DEEP	12/20/2013		Pending
Air Emissions - New Source Review Program	DEEP	7/14/2015		Pending

## **Appendix B Water Availability**

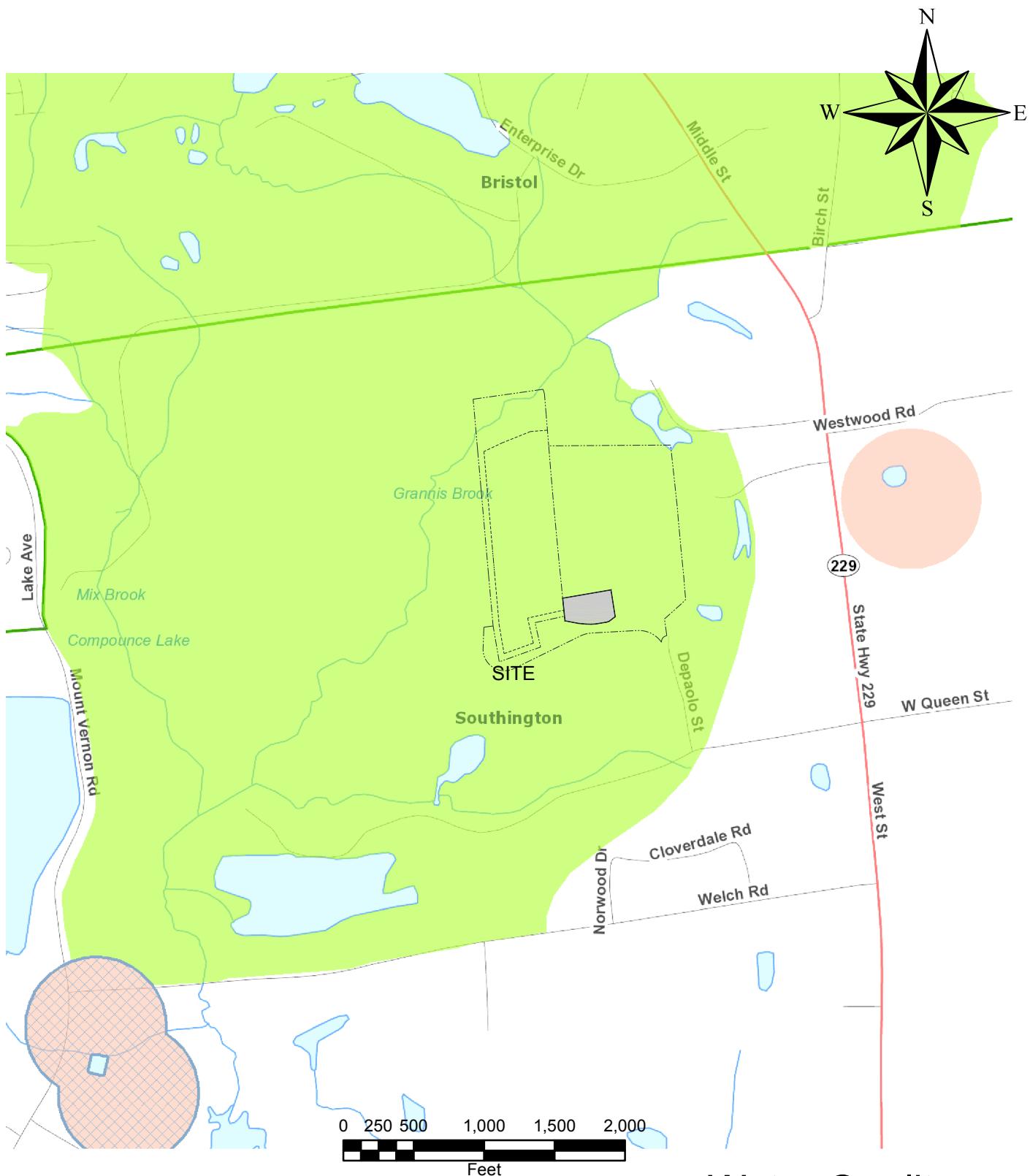


## Aquifer Protection

Quantum Biopower Southington, LLC  
49 DePaolo Drive, Southington, Connecticut

### Legend

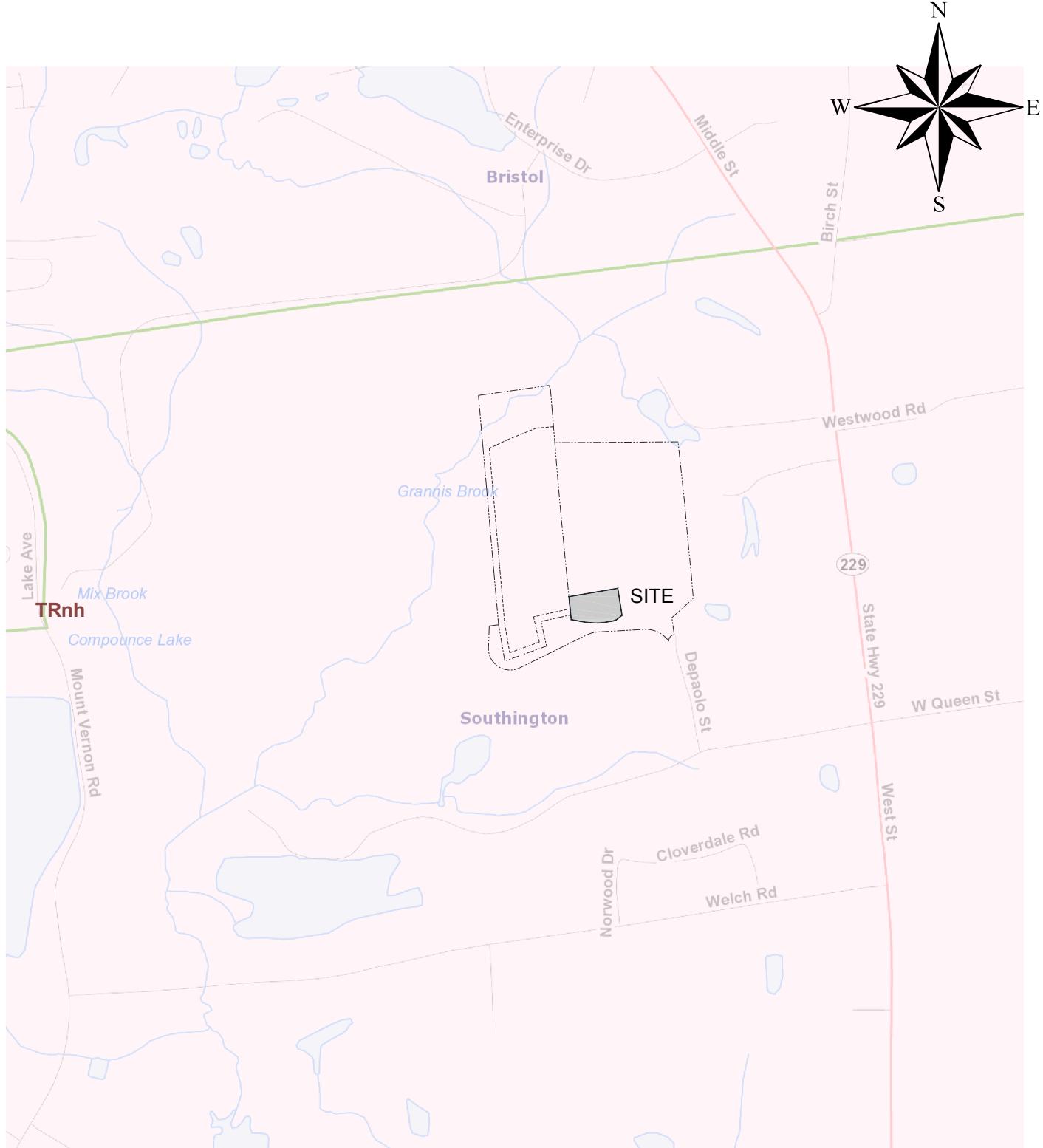
- Final Adopted Aquifer Protection
- Final Aquifer Protection
- Preliminary Aquifer Protection



## Water Quality

Quantum Biopower Southington, LLC  
49 DePaolo Drive, Southington, Connecticut

## **Appendix C Geology**

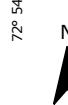


## Bedrock Geology

Quantum Biopower Southington, LLC  
49 DePaolo Drive, Southington, Connecticut

0 250 500 1,000 1,500 2,000  
Feet

Soil Map—State of Connecticut  
(Approximate Location of Quantum Biopower Southington)



Map Scale: 1:767 if printed on A landscape (11" x 8.5") sheet.

0 10 20 40 60 Meters

0 35 70 140 210 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

12/15/2015  
Page 1 of 3

## MAP LEGEND

Area of Interest (AOI)	
	Area of Interest (AOI)
Soils	
	Soil Map Unit Polygons
	Soil Map Unit Lines
	Soil Map Unit Points
Special Point Features	
	Blowout
	Borrow Pit
	Clay Spot
	Closed Depression
	Gravel Pit
	Gravelly Spot
	Landfill
	Lava Flow
	Marsh or swamp
	Mine or Quarry
	Miscellaneous Water
	Perennial Water
	Rock Outcrop
	Saline Spot
	Sandy Spot
	Severely Eroded Spot
	Sinkhole
	Slide or Slip
	Sodic Spot
Water Features	
	Streams and Canals
Transportation	
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads
Background	
	Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut

Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—Apr 18, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
36B	Windsor loamy sand, 3 to 8 percent slopes	0.1	3.1%
305	Udorthents-Pits complex, gravelly	2.0	96.9%
<b>Totals for Area of Interest</b>		<b>2.1</b>	<b>100.0%</b>

## **Appendix D Flood Plains**

Additional insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.

# LEGEND

## SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

**ZONE A99** Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

## FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

## OTHER FLOOD AREAS

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

## OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.



MAP SCALE 1" = 500'

250 0 500 1000 FEET

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.

Base Flood Elevation line and value; elevation in 0\*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in 0\*

\*Referenced to the North American Vertical Datum of 1988

Cross Section Line

Transect Line

97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4276000M 1000-meter Universal Transverse Mercator grid values, zone 18

600000 FT 5000-foot grid ticks

DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel).

● M1.5 River Mile

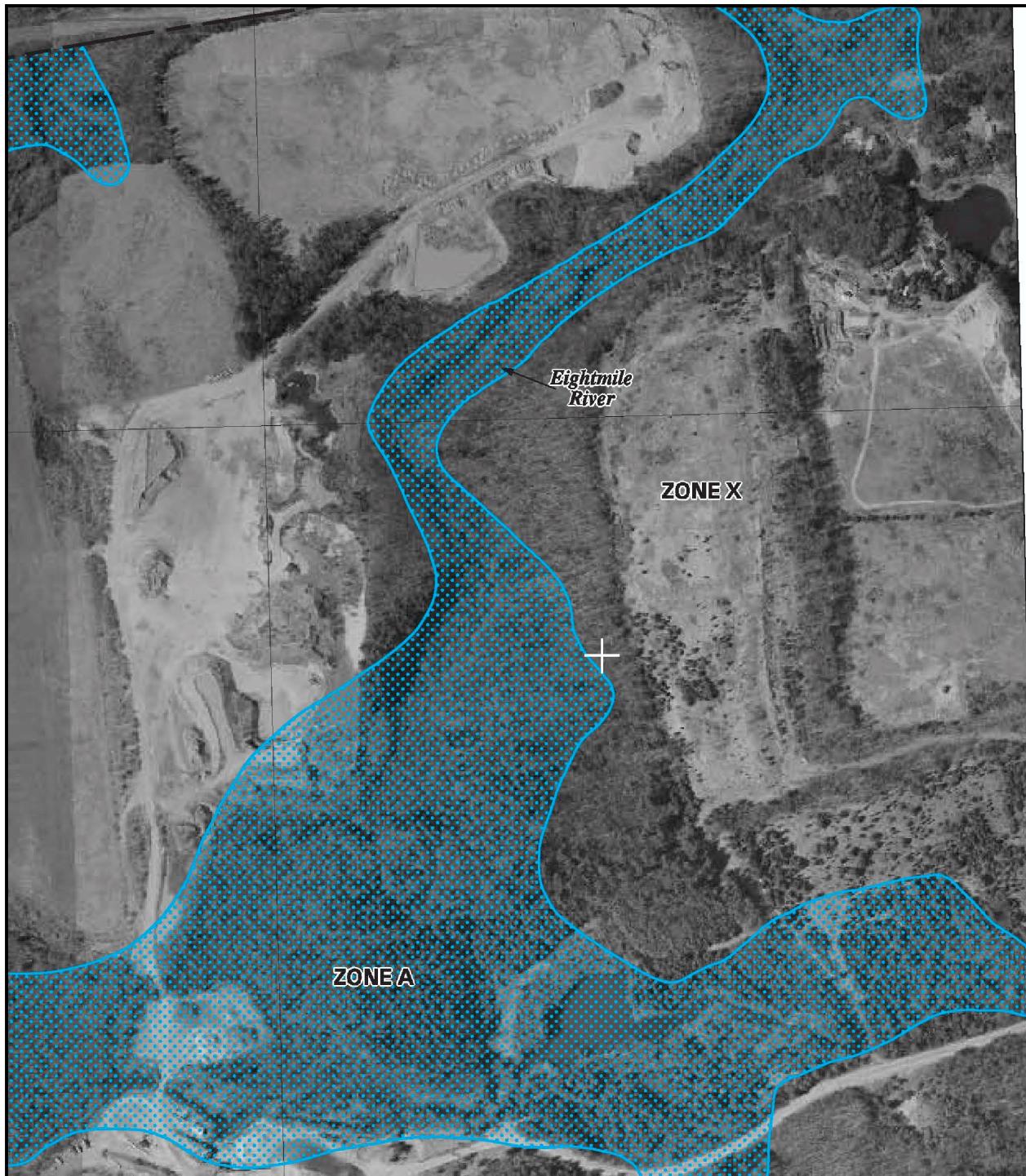
MAP REPOSITORY  
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE  
FLOOD INSURANCE RATE MAP  
SEPTEMBER 26, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map Revision History section of the FIRM panel.

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msfc.fema.gov](http://www.msfc.fema.gov)



Additional insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.



MAP SCALE 1" = 500'

250 0 500 1000 FEET

NAP

PANEL 0468F

## FIRM FLOOD INSURANCE RATE MAP

HARTFORD COUNTY,  
CONNECTICUT  
(ALL JURISDICTIONS)

### PANEL 468 OF 675

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
-----------	--------	-------	--------

BRISTOL, CITY OF SOUTHBURY, TOWN OF	090023 090037	0468 0468	F F
--	------------------	--------------	--------

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

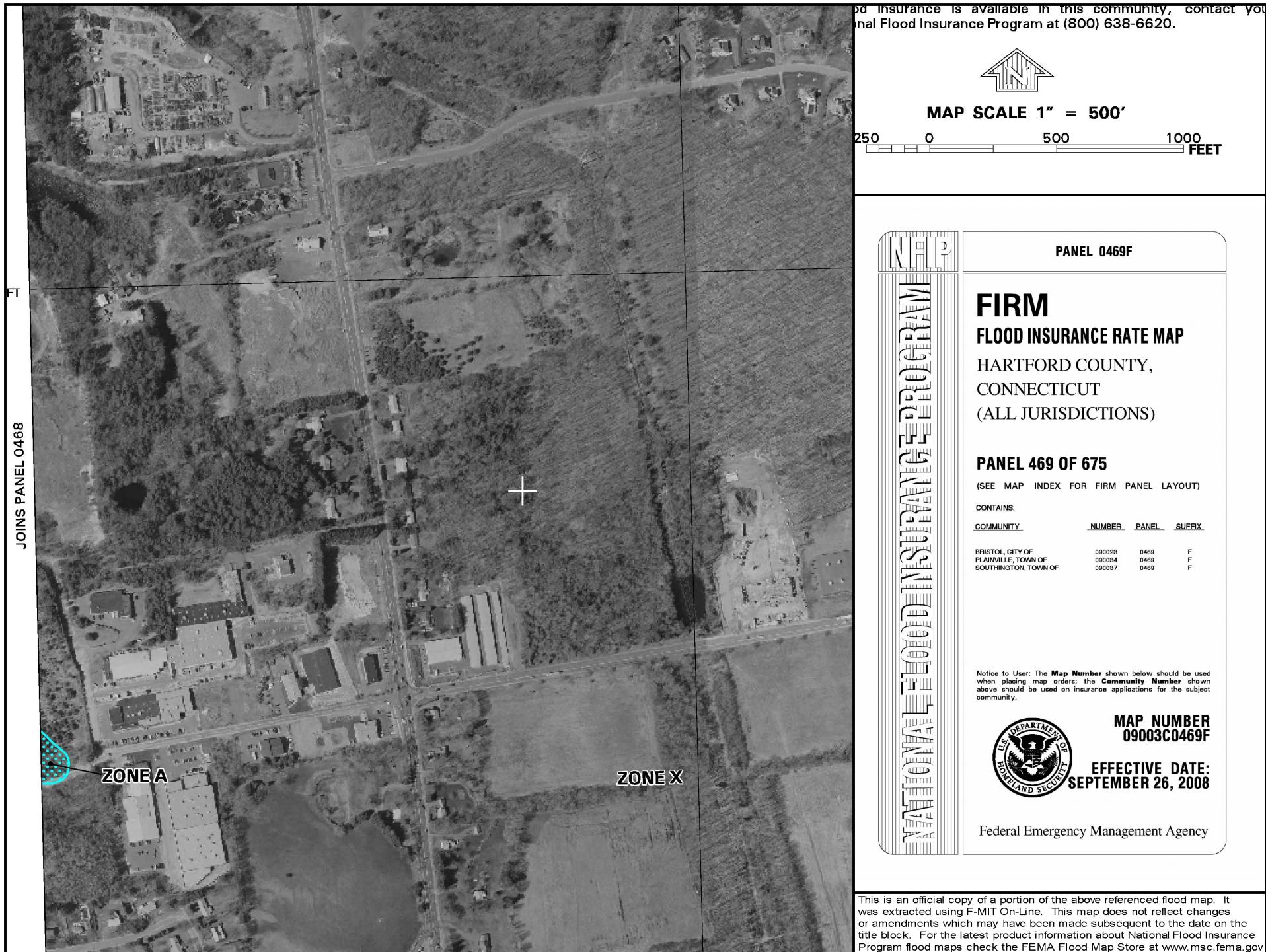


MAP NUMBER  
09003C0468F

EFFECTIVE DATE:  
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msfc.fema.gov](http://www.msfc.fema.gov)



## **Appendix E Photo-Documentation**



**Infiltration Basin for Drainage Area 3 Looking East**



**Infiltration Basin for Drainage Area 3 Looking West**



**Proposed Site for AD Facility and CHP Unit**



Aerial View of 49 DePaolo Drive and the Surrounding Area

## **Appendix F State Historic Preservation Office Letter**

January, 26, 2016

Attn: Patricia Carter  
Senior Survey Technician  
Loureiro Engineering Associates, Inc.  
100 Northwest Drive  
Plainville, CT 06062

**Re. Anaerobic Digester and Combined Heat and Power Unit, DePaolo Drive, Southington**

Dear Ms. Carter,

Thank you for the opportunity to review the above-named project for its potential impacts to historical and archaeological resources. As you have stated in an email of December 14, 2015, Loureiro Engineering Associates has been retained by Quantum Biopower Southington, LLC to prepare an Environmental Assessment for filing to the CT Siting Council of the parcel of land located north and west of DePaolo Drive in Southington. The facility will operate an anaerobic digester and Combined Heat and Power (CHP) unit on approximately 2 acres of the 15.47 acres parcel.

To aid your Environmental Assessment I have evaluated the proposed undertaking's potential impact within its Area of Potential Effect (APE) to National Register eligible historical properties. No archaeological or historical sites are documented within the project bounds, and none are anticipated to be visually affected by the proposed development. Examination of aerial photography indicates that the APE itself has undergone pervasive ground disturbance as part of a sand and gravel mining operations. The proposed undertaking is therefore expected to have *No Effect* on previously unidentified archaeological or historical resources. It should be noted, however, that final review authority for this undertaking lies with the State Historic Preservation Office.

While I do not anticipate that any Native American or historic-era archaeological deposits will be impacted, should construction activity result in the inadvertent exposure of artifacts, bones or charcoal-rich soil deposits, please have the construction crew contact my office immediately so that I can assess the situation. If you have any questions, please feel free to reach me directly at 860-299-5769.

Sincerely,



Brian D. Jones, Ph.D.  
State Archaeologist

cc: Catherine Labadia, Deputy SHPO

Office of State Archaeology  
Connecticut State Museum of Natural History  
2019 HILLSIDE ROAD, UNIT 1023  
STORRS, CT 06269-1023  
Brian.Jones@uconn.edu  
PHONE 860.486.5248  
www.cac.uconn.edu; www.mnh.uconn.edu

*An Equal Opportunity Employer*



Engineering • Construction • EH&S • Energy  
Waste • Facility Services • Laboratory

## TRANSMITTAL

TO	State Office of Historical Preservation One Constitution Plaza Hartford, CT 06103	DATE	12/16/2015
		PROJECT	Quantum Biopower
		LOCATION:	Southington, CT
		COMM. NO.:	82SI5.01.016
ATTN:	Todd Levine	PHONE #	(860) 256-2759

We are sending you  Herewith  Delivered by Hand  Under Separate Cover via \_\_\_\_\_

The following items:

<input type="checkbox"/> Plans	<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> Specifications
<input type="checkbox"/> Reports	<input type="checkbox"/> Copy of Letter	<input checked="" type="checkbox"/> <u>Review Form</u>

COPIES	DATE OR NO.	DESCRIPTION
1		SHPO Project Review Cover Form and Supporting Documentation

### THESE ARE TRANSMITTED AS INDICATED BELOW

<input checked="" type="checkbox"/> For your use	<input type="checkbox"/> No Exceptions Taken	<input type="checkbox"/> Return _____	Corrected Prints
<input type="checkbox"/> For Approval	<input type="checkbox"/> Make Corrections Noted	<input type="checkbox"/> Submit _____	Copies for _____
<input type="checkbox"/> As Requested	<input type="checkbox"/> Amend and Resubmit	<input type="checkbox"/> Resubmit _____	Copies for _____
<input type="checkbox"/> For Review & Comment	<input type="checkbox"/> Rejected	<input type="checkbox"/> For Bids Due	
<input type="checkbox"/> _____		<input type="checkbox"/> Returned after Loan to us	

### REMARKS:

Please feel free to contact me if you have any questions.

BY: Patricia Carter

**Loureiro Engineering Associates, Inc.**

100 Northwest Drive • Plainville, CT 06062 • 860.747.6181 • Fax 860.747.8822 • [www.Loureiro.com](http://www.Loureiro.com)

An Employee-Owned Company

**State Historic Preservation Office**

One Constitution Plaza | Hartford, CT 06103 | 860.256.2800 | Cultureandtourism.org

**PROJECT REVIEW COVER FORM****1. This information relates to a previously submitted project.**

You do not need to complete the rest of the form if you have been previously issued a SHPO Project Number. Please attach information to this form and submit.

SHPO Project Number \_\_\_\_\_  
(Not all previously submitted projects will have project numbers)Project Address \_\_\_\_\_  
(Street Address and City or Town)**2. This is a new Project.**

If you have checked this box, it is necessary to complete ALL entries on this form.

Project Name Quantum Biopower Southington, LLCProject Location 49 DePolo Drive

Include street number, street name, and or Route Number. If no street address exists give closest intersection.

City or Town Southington

In addition to the village or hamlet name (if appropriate), the municipality must be included here.

County Hartford

If the undertaking includes multiple addresses, please attach a list to this form.

Date of Construction (for existing structures) \_\_\_\_\_

**PROJECT DESCRIPTION SUMMARY (include full description in attachment):**Construction and operation of anaerobic digester and combined heat and power unit (CHP)**TYPE OF REVIEW REQUESTED****a. Does this undertaking involve funding or permit approval from a State or Federal Agency?** Yes  No

Agency Name/Contact

CT GREEN Bank  
CT DEEP

Type of Permit/Approval

Low interest loan  
VARIOUS - see attachment

State	Federal
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

**b. Have you consulted the SHPO and UCONN Dodd Center files to determine the presence or absence of previously identified cultural resources within or adjacent to the project area?**

Yes  No

If yes:

Was the project site wholly or partially located within an identified archeologically sensitive area?  Does the project site involve or is it substantially contiguous to a property listed or recommended for listing in the CT State or National Registers of Historic Places?  Does the project involve the rehabilitation, renovation, relocation, demolition or addition to any building or structure that is 50 years old or older?

**State Historic Preservation Office**

One Constitution Plaza | Hartford, CT 06103 | 860.256.2800 | Cultureandtourism.org

**PROJECT REVIEW COVER FORM**

**The Historic Preservation Review Process in Connecticut** Cultural Resource Review under the National Historic Preservation Act – Section 106 <http://www.achp.gov/106summary.html> involves providing technical guidance and professional advice on the potential impact of publicly funded, assisted, licensed or permitted projects on the state's historic, architectural and archaeological resources. This responsibility of the State Historic Preservation Office (SHPO) is discharged in two steps: (1) identification of significant historic, architectural and archaeological resources; and (2) advisory assistance to promote compatibility between new development and preservation of the state's cultural heritage.

Project review is conducted in two stages. First, the SHPO assesses affected properties to determine whether or not they are listed or eligible for listing in the Connecticut State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures. For more information and guidance, please see our website at: <http://www.cultureandtourism.org/cct/cwp/view.asp?a=3933&q=293820>

**ALL PROJECTS SUBMITTED FOR REVIEW MUST INCLUDE THE FOLLOWING MATERIALS\*:**

**PROJECT DESCRIPTION** Please attach a full description of the work that will be undertaken as a result of this project. Portions of environmental statements or project applications may be included. The project boundary of the project should be clearly defined\*\*

**PROJECT MAP** This should include the precise location of the project – preferably a clear color image showing the nearest streets or roadways as well as all portions of the project. Tax maps, Sanborn maps and USGS quadrangle maps are all acceptable, but Bing and Google Earth are also accepted if the information provided is clear and well labeled. The project boundary should be clearly defined on the map and affected legal parcels should be identified.

**PHOTOGRAPHS** Clear, current images of the property should be submitted. Black and white photocopies will not be accepted. Include images of the areas where the proposed work will take place. May require: exterior elevations, detailed photos of elements to be repaired/replaced (windows, doors, porches, etc.) All photos should be clearly labeled.

For Existing Structures	Yes	N/A	Comments
Property Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For New Construction	Yes	N/A	Comments
Project plans or limits of construction (if available)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If project is located in a Historic District include renderings or elevation drawings of the proposed structure	<input type="checkbox"/>	<input type="checkbox"/>	
Soils Maps <a href="http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm">http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Historic Maps <a href="http://magic.lib.uconn.edu/">http://magic.lib.uconn.edu/</a>	<input type="checkbox"/>	<input type="checkbox"/>	
For non-building-related projects (dams, culverts, bridge repair, etc)	Yes	N/S	Comments
Property Card	<input type="checkbox"/>	<input type="checkbox"/>	
Soils Map (see above)	<input type="checkbox"/>	<input type="checkbox"/>	
Historic Maps (see above)	<input type="checkbox"/>	<input type="checkbox"/>	

**PROJECT CONTACT**

Name \_\_\_\_\_ Title \_\_\_\_\_

Firm/Agency \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Cell \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

\*Note that the SHPO's ability to complete a timely project review depends largely on the quality of the materials submitted.

\*\* Please be sure to include the project name and location on *each page* of your submission.

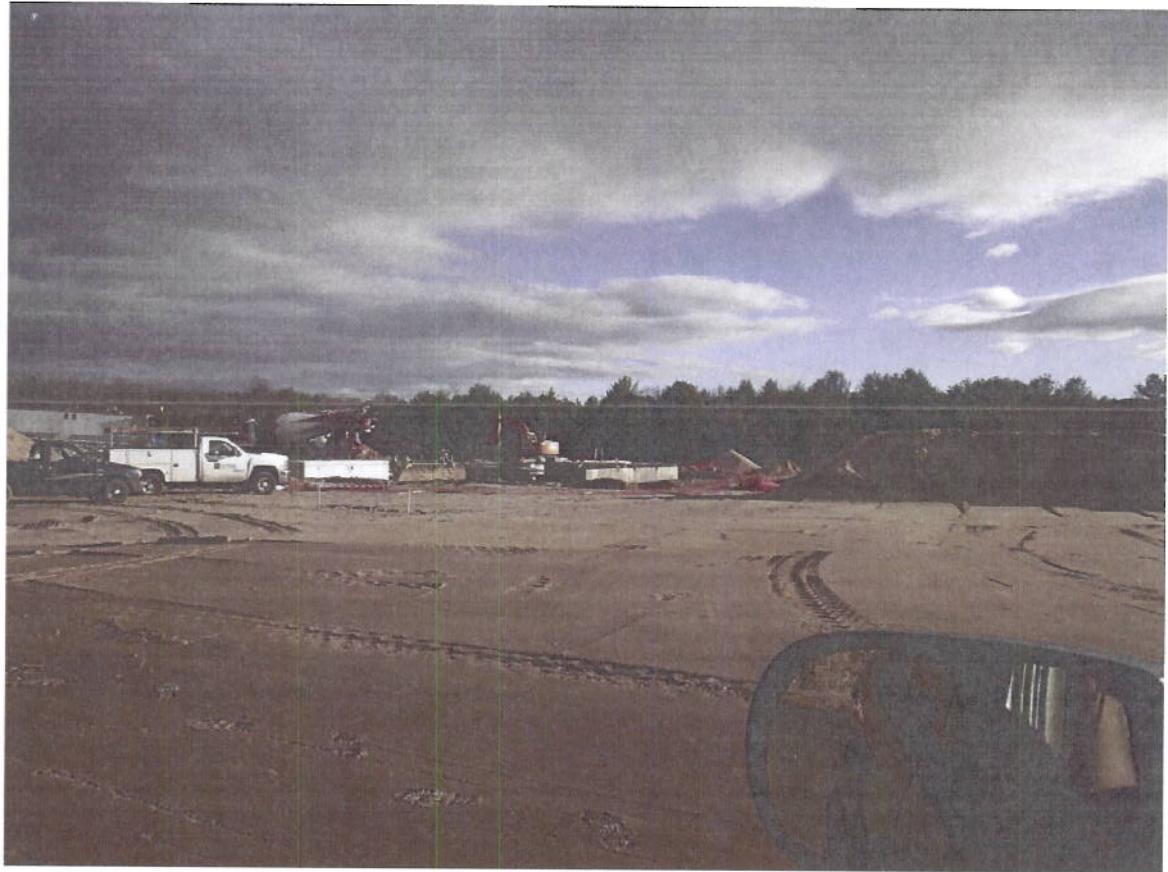
## Quantum Biopower Southington LLC

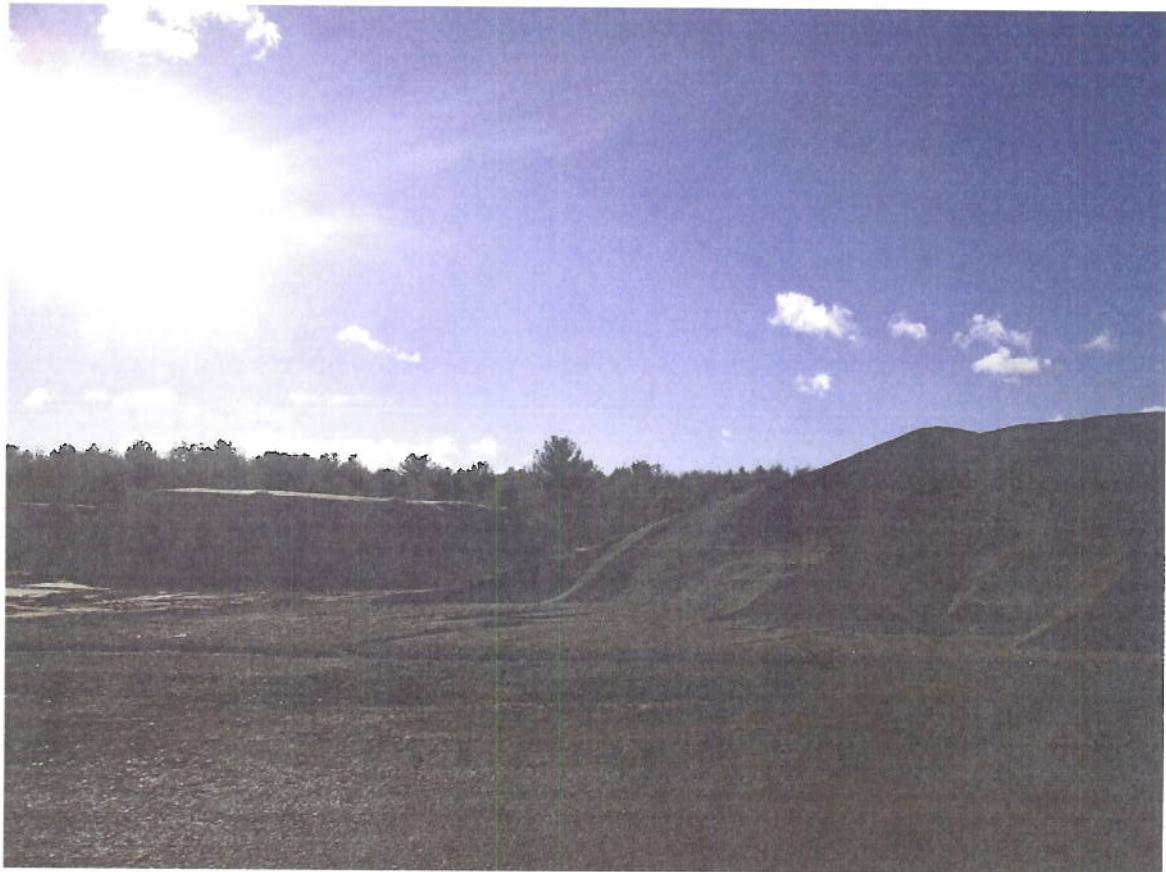
### Project Description

Quantum Biopower Southington, LLC. (QBS) proposes to construct and operate a commercial anaerobic source separated organic materials (SSOM) processing and energy production facility, hereafter referred to as "the anaerobic digestion (AD) facility". The AD facility will be located at 49 Depaolo Drive in Southington. The AD facility will be situated on approximately 2 acres of the 37.24 acre site owned by the B&R Corporation. QBS and B&R Corporation are subsidiaries of The Supreme Group, Inc.

The AD facility will perform a two-phase liquid state anaerobic digestion process that is anticipated to generate an estimated 19,600 cubic feet of biogas per hour through the digestion of approximately 4.6 wet tons of SSOM per hour. The biogas will primarily be used to generate heat and electricity through the operation of a Combined Heat and Power (CHP) unit consisting of a spark ignition reciprocating internal combustion engine. Electric generation potential for the facility is estimated at 1.2 MW. A flare will be operated for the disposal of excess biogas in the event the CHP engine is not operating due to planned maintenance or other causes.

Construction of the Processing building is underway. The site has been rough graded and the material excavated for the footing of the Processing Building is stock piled to the west of the building. The material will be used to backfill around the footings. (Do to site safety policies we were not allowed to walk the site to take pictures; instead the pictures were taken from a vehicle. Vehicular access around the site was limited due to the ongoing construction activities).





**Quantum Biopower Southington, LLC Status of Permitting**

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Permit No. (if applicable)
General Permit Application for a Brush and Clean Wood Recycling Facility	DEEP	1/17/2013	6/6/2013	131-367
Earth Excavation	Southington	5/7/2013	EE-143	
Site Plan - B&R Parcel	Southington	11/8/2013	SPR-1621.4	
Site Plan - Landfill Parcel	Southington	5/21/2013	SPR-1641	
Site Plan Modification - Overall Site	Southington	5/6/2014	SPR-1667	
IWVC Approval - Overall Site	Southington	4/30/2014	NA	
Special Permit Use - Overall Site	Southington	1/7/2014	SPU-531	
Water Main Extension	Southington	6/12/2014	NA	
General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities	DEEP	1/17/2013	4/3/2013	GSN002420
Permit to Construct and Operate a Solid Waste Disposal Facility	DEEP	12/20/2013	Pending	
				DEP/HWM/CS-
Request to Modify the Landfill Closure Plan and the Stewardship Permit	DEEP	5/12/2014	1/12/2015	131-017-M
				Pending
Air Emissions - New Source Review Program	DEEP	7/14/2015		



**Town of Southington, CT**  
**Property Listing Report**

Map Block Lot 178017

Account 3702

### Property Information

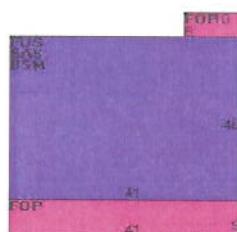
Property Location	49 DEPAOLO DR		
Owner	B & R CORPORATION		
Co-Owner			
Mailing Address	216 BOGUE ROAD HARWINTON CT 06791		
Land Use	388 Other Outdoor Facilities		
Land Class	C		
Water Service			

Sewer Service	
Census Tract	4303
Neighborhood	1090
Zoning Code	I-2
Acreage	36.64
Book \ Page	1263/ 612
Lot Setting/Desc	Level
Trash Day	

### Photo



### Sketch



### Primary Construction Details

Year Built	2014
Stories	2
Building Style	Off/Retail
Building Use	Ind/Comm
Building Condition	C
Floors	Ceramic Tile
Total Rooms	

Bedrooms	0
Full Bathrooms	
Half Bathrooms	
Bath Style	n/a
Kitchen Style	n/a
Roof Style	Gable
Roof Cover	Asphalt Shingl

Exterior Walls	Vinyl Siding
Interior Walls	Drywall
Heating Type	Forced Hot Air
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	5349
Total Living Area	3280



### Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
<b>Buildings</b>		391780
<b>Outbuildings</b>	92500	64760
<b>Improvements</b>	652180	456540
<b>Extras</b>	0	0
<b>Land</b>	723380	506360
<b>Total</b>	1375560	962900

## Sub Areas

## Outbuilding and Extra Items

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
B & R CORPORATION	1263/ 612	2012-11-19	1800000
DUDAC MARIANNE N	1254/ 302	2012-08-27	
DUDAC GEORGE S & MARIANNE N	314/ 336	1980-12-11	0



**Town of Southington, CT  
Property Listing Report**

## GIS PIN

178017

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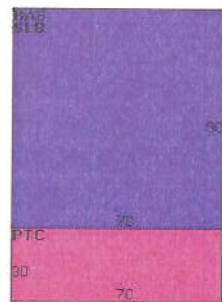
## Account

3702

## Photo



## Sketch



### Primary Construction Details

Year Built	2014	Kitchen Style	n/a
Stories		Roof Style	Gable
Building Style	Pre Eng Garage	Roof Cover	Enamled Metal
Building Use		Exterior Walls	Enameled Metal
Building Condition		Interior Walls	Minimum
Floors	Concrete	Heating Type	Hot Air-no Duc
Total Rooms		Heating Fuel	Gas
Bedrooms		AC Type	None
Bathrooms		Gross Bldg Area	
Bath Style	n/a	Total Living Area	

## Photo



### Sketch



### Primary Construction Details

Year Built	2013	Kitchen Style	n/a
Stories		Roof Style	Gable
Building Style	Pre Eng Whse	Roof Cover	Vinyl - 50 yr
Building Use		Exterior Walls	Minimum
Building Condition		Interior Walls	Minimum
Floors	Concrete	Heating Type	None
Total Rooms		Heating Fuel	None
Bedrooms		AC Type	None
Bathrooms		Gross Bldg Area	
Bath Style	n/a	Total Living Area	

## **Appendix G Noise Evaluation Report**

**HMB**

HMB Acoustics LLC

3 Cherry Tree Lane, Avon, CT 06001

860-677-5955

---

**Noise Evaluation Report**

Quantum Biopower - AD / CHP Equipment  
49 Depaolo Drive  
Southington, CT

January 14, 2016

Prepared For:  
George F. Andrews Jr., P.E., L.E.P  
Vice President  
Loureiro Engineering Associates, Inc.  
100 Northwest Drive  
Plainville, CT 06062

Prepared By:  
Allan Smardin  
HMB Acoustics LLC  
3 Cherry Tree Lane  
Avon, CT 06001

## **Introduction**

Quantum Biopower has proposed a “Raptor Plant” to be located at 49 Depaolo Drive, Southington, CT. The proposed site will include a Combined Unit and Power (CHP) unit and Anaerobic Digester Equipment. The purpose of this evaluation is to determine whether the equipment will comply with the State of CT Noise Regulations.

On December 15, 2015, existing background noise measurements were taken at the site, and in surrounding areas. These levels measured between 45-50 dBA. This report and the State of CT Noise Regulations utilize a dBA scale. This scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise. The Quantum Biopower facility is in an Industrial Noise Zone except for Residential Noise Zones to the North and Northeast.

## **Noise Regulations**

The State of CT has enacted regulations which limits the amount of noise which may be transferred from one property to another. In pertinent part, the Regulations provide as follows:

Daytime hours: The hours between 7 a.m. and 10 p.m., local time.

Nighttime hours: The hours between 10 p.m. and 7 a.m., local time.

## Noise Level Standards

No person in an Industrial Noise Zone shall emit noise beyond the property line of his/ Her premises exceeding levels stated herein:

<u>Emitter Zone</u>	<u>Allowable Noise Levels (dBA)</u>
<u>@ a Residential Receptor Zone</u>	
Industrial	Daytime = 61   Nighttime = 51

<u>Emitter Zone</u>	<u>Allowable Noise Levels (dBA)</u>	
	<u>@ an Industrial Receptor Zone</u>	
Industrial	Daytime = 70	Nighttime = 70

### **Noise Evaluation Results**

Quantum Biopower AD / CHP Equipment. R=Residential Noise Zone; I=Industrial Noise Zone.

<u>Equipment</u>	<u>Noise Level (dBA) Projected To The Nearest Industrial or Residential Property Line</u>				
	<u>(R)</u>	<u>(R)</u>	<u>(I)</u>	<u>(I)</u>	<u>(I)</u>
	North	Northeast	South	East	West
Digester Holding Tank	42	42	55	45	45
Anamix - T Mixer	41	42	58	48	51
Tar Mixer	41	42	58	45	48
Reception Tank Mixer	41	41	58	49	53
Sodium Hydroxide Dosing Pump	42	42	56	46	46
Anamix - T Feed Pumps	42	42	54	44	49
Cooling Tower Recirculation Pump	41	41	54	45	45
Biosulfurix Tower	41	41	55	45	45
Biosulfurix Air Blower	41	41	55	44	49
Biogas Blower	40	38	49	38	43
Biogas Cooling Tower	49	49	58	57	60
Aeration Blowers	45	46	56	48	42
Foul Air Fan	44	45	57	48	44
CHP	35	35	44	35	35

The noise levels take into account the effect of acoustical shielding provided by other structures on the property.

The calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of CT Noise Regulations when projected to the property lines.

## **Appendix H Traffic**

December 2, 2013

Planning and Zoning Commission  
Town of Southington  
Southington Town Hall  
75 Main Street  
Southington, CT 06489

**RE: Proposed Zone Change  
49 Depaolo Drive  
Southington, CT  
Our File: 12143**

Chairman DelSanto and Commission members:

On behalf of the B & R Corporation, we are herewith submitting fifteen (15) copies of a Traffic Statement in support of an application for a revised Special Permit Use on the property located at 49 DePaolo Drive in the Town of Southington, Connecticut. In August of 2012 a zone change and site plan approval were approved for the site. In April 2013 an approval was granted for an earth excavation permit for the property. The proposed site plan is depicted on plans prepared by Loureiro Engineering and dated November 20, 2013.

At the time of the zone change and site plan approval in August 2012 we represented to the commission that the zone change and site plan approval would result in a peak hour trip generation of 12 trucks, or a total of 24 peak hour trips (12 entering and 12 exiting trucks). The operator of the existing facility indicates that over the last six months the facility has averaged 90 trips per day with a peak hour volume of 12 trips on average. The existing facility operates 10 hours per day. The existing peak hour volumes at the site are approximately 50% of the volumes represented during the zone change application.

Chairman DelSanto  
December 2, 2013  
Page 2

The proposed expanded operation is projected to add an additional eight (8) trucks for a total of sixteen (16) trips ends per day, on average. This represents one or two additional peak hour trips on average. Therefore, if the current application is approved, the combined operations on site will result in fewer peak hour trips than reported to the commission during the zone change/site plan application process in August 2012.

Based on the relatively low volumes of traffic anticipated to be generated by the proposed development, and based on the fact that the current combined peak hour traffic volume projection is less than the projection for the current approval for the parcel, it is our professional opinion that the approval of the proposed site plan on the subject parcels will not have a significant impact on traffic operations on the local roadway network. If you require any additional information please do not hesitate to contact our office.

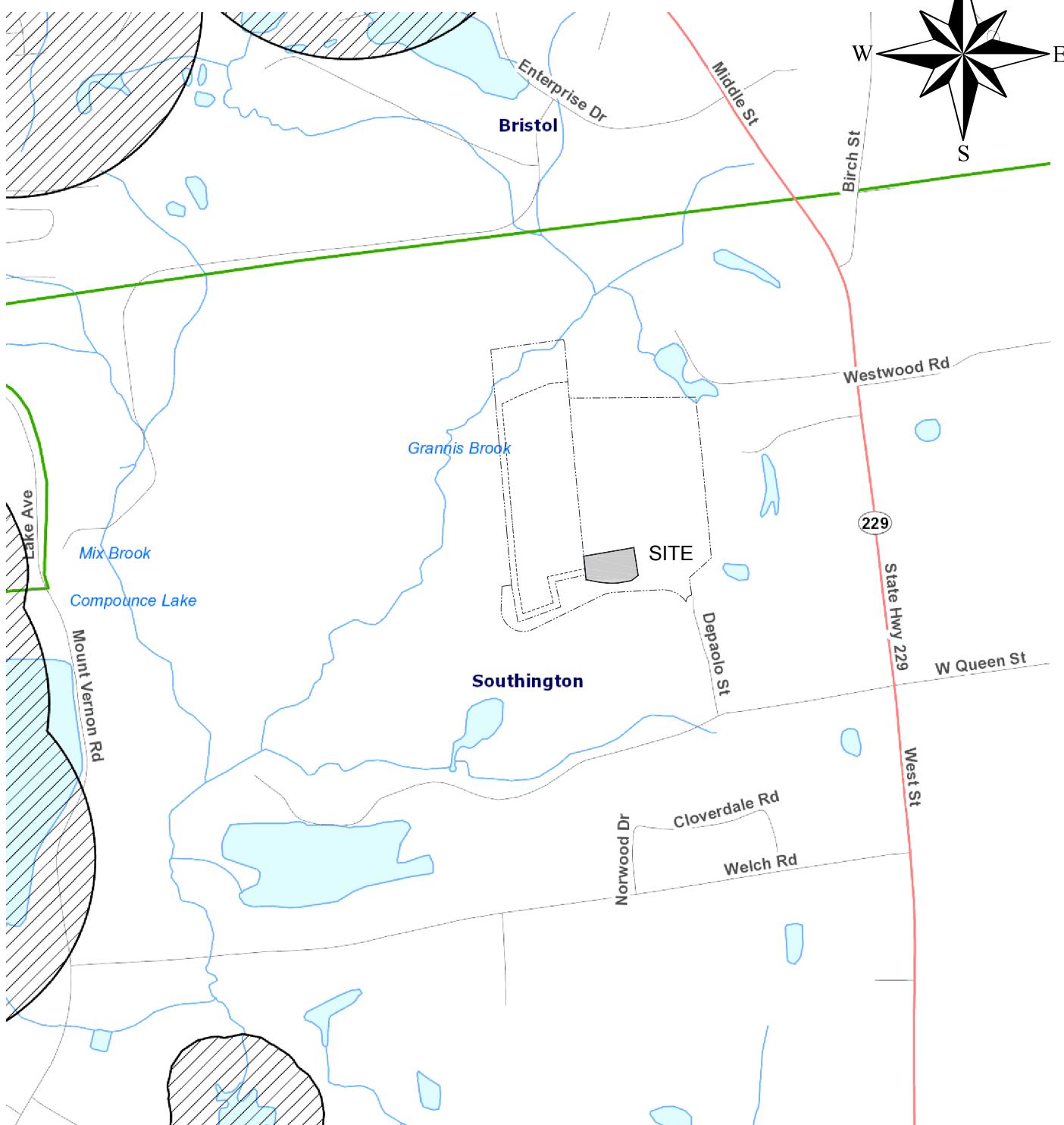
Sincerely,

**F.A. Hesketh & Associates, Inc.**



Scott F. Hesketh, P.E.  
Manager of Transportation Engineering

## **Appendix I CTDEEP NDDB Mapping**



## Natural Diversity Database Areas

Quantum Biopower Southington, LLC  
49 DePaolo Drive, Southington, Connecticut

0 250 500 1,000 1,500 2,000  
Feet

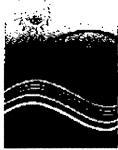
### Legend

- Natural Diversity Database Area

# EXHIBIT 6

---

*ROBERT C. ISNER, DEEP, LETTER DATED  
SEPTEMBER 24, 2015*



Connecticut Department of  
ENERGY &  
ENVIRONMENTAL  
PROTECTION

79 Elm Street • Hartford, CT 06106-5127

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Affirmative Action/Equal Opportunity Employer

September 24, 2015

Mark Vigneault,  
Vice President of Operations  
B&R Corporation  
216 Lower Bogue Road  
Harwinton, Connecticut 06791

Re: Quantum BioPower  
Proposed Anaerobic Digestion Facility

Dear Mr. Vignault:

Thank you for your continuing support to advance Connecticut's goal to develop state of the art organics recycling capacity, and to help with education on the ease and benefits of recycling organics. As you know, the State of Connecticut sees organics recycling as an important opportunity to drive down solid waste disposal costs and make more appropriate use of the state's resources. As a result, the Connecticut Department of Energy and Environmental Protection ("DEEP") has been actively encouraging projects aimed at diverting food wastes and other organic material from the waste stream for an extended period of time. In fact, DEEP's 2006 *Solid Waste Management Plan* identified food waste recycling facilities as the highest priority infrastructure gap relative to DEEP's policy objectives.

In light of infrastructure gaps such as with organics recycling capacity, DEEP prioritizes the review of permit applications for organics recycling facilities. This is particularly the case for facilities that fully harness the resource potential of organics through the utilization of anaerobic digestion processes similar to the facility that Quantum BioPower is developing in central CT.

Quantum BioPower's organics recycling project is exactly the type of approach needed to drive down solid waste disposal costs and recapture the value in the waste stream currently being disposed of. It is also an approach supported by the state's Solid Waste Management Plan and the Governor's Modernizing Recycling Working Group. Substantially increasing Connecticut's organics recycling capacity is also part of DEEP's ongoing waste transformation and aligns with a recently modified state law (CGS Sec. 22a-226e) designed to encourage recycling of organic materials.

Once operational, Quantum BioPower's proposed facility will represent a significant step toward meeting the state's stated goals relating to the development of infrastructure which provides a comprehensive and more sustainable approach to organics management. We look forward to you working with you to ensure your project moves smoothly from its current vision to an operational organics recycling facility. If there are any questions regarding this letter please contact either me at (860) 424-3264, or Ms. Gabrielle Frigon, Supervisor of DEEP's Solid Waste Permitting Program at (860) 424-3795.

Sincerely,

Robert C. Isner, Director  
Waste Engineering and Enforcement Division  
Bureau of Materials Management and Compliance Assurance

**REMEMBER TO REDUCE, REUSE, AND RECYCLE:** It's a *first* step towards a more sustainable world and in Connecticut, it's the Law. To learn more about what you can do, go to [www.ct.gov/dep/swmp](http://www.ct.gov/dep/swmp), or call (860) 424-3366.

# EXHIBIT 7

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*DEEP NOTICE OF TENTATIVE DETERMINATION  
TO APPROVE A PERMIT TO CONSTRUCT AND  
OPERATE A SOLID WASTE FACILITY, AND DRAFT  
PERMIT TO CONSTRUCT AND OPERATE*



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**NOTICE OF TENTATIVE DETERMINATION TO APPROVE  
A Permit to Construct and Operate a Solid Waste Facility**

**Applicant: B&R Corporation**

**Application No. 201303057**

The Commissioner of Energy and Environmental Protection ("DEEP") hereby gives notice that a tentative determination has been reached to approve the following application submitted under Section 22a-208a of the Connecticut General Statutes.

Application No.:	201303057
Applicant's Name and Address:	B&R Corporation, 216 Lower Bogue Road, Harwinton, CT
Contact Name/Phone/Email:	Mark Vigneault, Vice President of Operations (860) 485-0343, <a href="mailto:mvigneault@supremeindustries.com">mvigneault@supremeindustries.com</a>
Type of Permit/Activity:	Permit to Construct and Operate
Type of Facility:	Volume Reduction Plant
Facility Location:	49 DePaolo Drive, Southington, CT
Facility design capacity:	Anaerobic Digestion: 480 tons per day (tpd); Clean Wood Processing: 500 tpd; and Composting: 100 tpd Organic Materials Processing Anaerobic Digestion and passive composting: twenty-four (24) hours per day seven (7) days a week Clean wood and windrow processing: Monday-Friday 7:00 a.m.-6:00 p.m. and Saturday 7:00 a.m.-5:00 p.m.
Hours of operation:	Monday-Friday 7:00 a.m.-6:00 p.m. and Saturday 7:00 a.m.- 5:00 p.m.
Hours for receipt:	

Facility maximum storage capacity: 103,192 cubic yards

The facility will consist of three separate solid waste management areas (1) anaerobic digestion which includes the pulping and depackaging activity; (2) clean wood processing, and (3) leaf and grass composting. The facility currently consists of: a site access gate; a paved access road and parking-lot; a truck scale and scale house; an office building, a maintenance building, a compost pad, clean wood processing and storage areas, multiple storage areas for commodities (finished compost and mulch products). The anaerobic digestion activity will include: an operations building, three (3) dedicated receiving areas, two (2) aboveground tanks, four (4) underground tanks and a building for pulping and depackaging organic materials.

The proposed anaerobic digestion activity is a process in which microorganisms, in the absence of oxygen and in highly controlled conditions, convert food waste and other organic material into clean energy.

The facility is located on a 10 acre site within a 56.57 acre parcel of land. The Applicant owns 37.24 acres and leases the remainder 19.33 acres from the Town of Southington which includes the Town's closed landfill. The proposed activity is located in the Quinnipiac River regional basin.

B&R Corporation  
49 DePaolo Dr. Southington  
Notice of Tentative Determination  
Application No. 201303057

Upon written approval granted by the Commissioner, and in accordance with the conditions set forth in the Permit to Construct and Operate, the following waste streams may be accepted at the facility: a) source separated organic materials such as food scraps, food processing residue, liquid beverages, fats, oils and grease generated by industrial and commercial food preparation processes and grass clippings (b) clean wood, (c) leaves and grass clippings.

#### **INFORMATION REQUESTS/PUBLIC COMMENT**

This application has been assigned No. 201303057; please use this number when corresponding with DEEP regarding this application. Interested persons may obtain a copy of the application from the applicant's contact noted above. The application and supporting documentation are available for inspection at DEEP, Waste Engineering and Enforcement Division, Bureau of Materials Management and Compliance Assurance, 79 Elm Street, Hartford, CT from 8:30 a.m. to 4:30 p.m. Monday through Friday and at other times by appointment. Questions may be directed to Elaine H. DeSalvo of the Solid Waste Permitting Program at (860) 424-3304 or [elaine.desalvo@ct.gov](mailto:elaine.desalvo@ct.gov).

Before making a final decision on this application, the Commissioner shall consider written comments on the application from interested persons. Written comments on the application should be directed to Elaine H. DeSalvo, Waste Engineering and Enforcement Division, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127, or may be submitted via electronic mail to [elaine.desalvo@ct.gov](mailto:elaine.desalvo@ct.gov) no later than thirty (30) days from the publication date of this notice.

#### **PETITIONS FOR PUBLIC HEARING**

The Commissioner may conduct a public hearing if the Commissioner determines that the public interest will best be served thereby, or shall hold a hearing upon receipt of a petition signed by at least twenty-five persons. Petitions should include the application number noted above and also identify a contact person to receive notifications. Petitions may also identify a person who is authorized to engage in discussions regarding the application and, if resolution is reached, withdraw the petition. Original signed petitions may be scanned and sent electronically to [deep.adjudications@ct.gov](mailto:deep.adjudications@ct.gov) or may be *mailed or delivered* to: DEEP Office of Adjudications, 79 Elm Street, 3<sup>rd</sup> floor, Hartford, 06106-5127. All petitions must be received within the comment period noted above. If submitted electronically, original signed petitions must also be mailed or delivered to the address above within ten days of electronic submittal. If a hearing is held, timely notice of such hearing will be published in a newspaper of general circulation. For additional information go to [www.ct.gov/deep/adjudications](http://www.ct.gov/deep/adjudications).



Robert C. Isner, Director  
Waste Engineering and Enforcement Division  
Bureau of Materials Management and  
Compliance Assurance

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action and Equal Opportunity Employer that is committed to complying with the Americans with Disabilities Act. To request an accommodation contact us at (860) 418-5910 or [deep.accommodations@ct.gov](mailto:deep.accommodations@ct.gov)

**PERMIT TO CONSTRUCT AND OPERATE**

PERMITTEE: B&R Corporation  
FACILITY NAME Supreme Energy and Recycling  
FACILITY ADDRESS: 49 DePaolo Drive, Southington, CT  
PERMIT No. Permit No.

Pursuant to Section 22a-208a of the Connecticut General Statutes ("CGS") and Section 22a-209-4 of the Regulations of Connecticut State Agencies ("RCSA"), a PERMIT TO CONSTRUCT AND OPERATE ("Permit") IS HEREBY ISSUED by the Commissioner of Energy and Environmental Protection ("Commissioner") to B&R Corporation ("Permittee") to construct and operate a solid waste Volume Reduction Plant composting through anaerobic digestion source separated organic materials, processing clean wood and composting leaves and grass clippings ("Facility") located at 49 DePaolo Drive, Southington, Connecticut.

**A. GENERAL TERMS AND CONDITIONS**

1. a. This Permit is based on and incorporates by reference pertinent and appropriate sections of documents and specifications submitted as part of Application No. 201303057 for a Permit to Construct and Operate, including:
  - i. Application form received on June 7, 2013, resubmitted in its entirety on December 20, 2013 and January 9, 2015;
  - ii. Operation and Management Plans ("O&MP") addressing: Site-wide operations, Anaerobic Digestion, Clean Wood Processing and Leaf Composting dated December 2013 revised December 2014;
  - iii. Anaerobic Digestion O&MP revised Section 4. Process Flow and State of Feedstock, dated August 3, 2015;
  - iv. Two (2) sets of revised engineering drawings received on January 29, 2015: Thirty-three (33) engineering drawings depicting the Anaerobic Digester, prepared and P.E. certified by Alan R. Johnson, P.E. Quasar Energy Group and sixteen (16) engineering drawings depicting the overall Facility, prepared and P.E. certified by George F. Andrews, Jr. P.E., Loureiro Engineering Associates, Inc. ("LEA");
  - v. Letters to the Department of Energy and Environmental Protection ("Department") from LEA dated January 9, 2015 and November 4, 2015 responding to Department staff's review comments;
  - vi. Revised Quasar engineering drawings G-2, G-4, A-4 and P-4 received on November 6, 2015; and
  - vii. Letter to the Department, from LEA dated November 18, 2015, received November 23, 2015 including a revised Storage Capacities Table dated November 18, 2015 and revised engineering drawings entitled "Site Plan, C-1.0" dated January 9, 2015, revisions January 29, 2015, October 28, 2015 and November 18, 2015 and "Site Plan Leaf Composting Activities, C.1.2" dated December 20, 2013, revisions January 9, 2015, October 28, 2015 and November 18, 2015, prepared and P.E. certified by George F. Andrews Jr.

- b. The Permittee shall maintain at the Facility and have available for reference by Facility staff and inspection by the Commissioner:
  - i. All documents or copies of such documents submitted as Application No. 201303057 and any document submitted in support of said application for the life of this Permit; and
  - ii. A copy of this Permit and the Facility's Facility Plan which consists of the Operation and Management Plan and the engineered drawings which describe the Facility and its operations; and
- c. The Permittee shall for the life of this Permit, provide to the Department notification within thirty (30) days of any changes in the information provided as part or in support of the application on which this Permit was based. Any inaccuracies found in the information submitted by the Permittee may result in revocation, reissuance, or modification of this Permit and civil or criminal enforcement actions.

2. As used in this Permit, the following definitions apply:

“Anaerobic digestion” or “AD” means the process of controlled decomposition of source separated organic material in the absence of oxygen to produce biogas and Digestate.

“Aspergillus fumigatus” is a species of the fungus Aspergillus that may be produced during the composting process.

“CFR” means the Code of Federal Regulations in effect the date this Permit is issued.

“Certified operator” means the solid waste facility operator or an employee of such operator who is present at the facility and oversees or carries out the daily operations authorized through this Permit, and whose qualifications are currently certified in accordance with Section 22a-209-6 of the RCSA

“Clean wood” as defined in Section 22a-208a-1 of the RCSA means any wood which is derived from such products as pallets, skids, spools, packaging materials, bulky wood waste, or scraps from newly built wood products, provided such wood is not treated wood as defined in Section 22a-209a(a)(2) or demolition wood waste. For the purposes of this Permit, Clean wood may also include Land clearing debris.

“Commingled Recyclables” means a combination of metal, glass, and plastic containers, or mixed paper.

“Commissioner” means the Commissioner of Energy and Environmental Protection.

“Compost pad” as defined in Section 22a-2-8i(a)-1 of the RCSA means a cleared, graded surface within a leaf composting facility upon which windrows are placed for composting.

“Day” means calendar day.

“Department” means the Department of Energy and Environmental Protection.

“Designated Recyclable Item” means an item designated for recycling by the Commissioner in regulations adopted pursuant to subsection (a) of Section 22a-241b or designated for recycling pursuant to Section 22a-256 or 22a-208v of the CGS.

“Digestate” means the material resulting from the Anaerobic digestion of source separated organic materials and fats, oils and grease.

“Facility generated recyclables” means Recyclable Items that are generated by the de-packaging of packaged Source-separated organic material.

“Fats, oils and grease” or “FOG” means any fats, oils and grease generated by industrial and commercial food preparation processes.

“Final Products” means digestate, clean wood, and composted leaves and grass clippings, which are ultimately delivered to a market.

“Grass clippings” means plant material produced as a result of mowing a lawn.

“Land clearing debris” as defined in Section 22a-208a-1(19) of the RCSA means trees, stumps, branches or other wood generated from clearing land for commercial or residential development, road construction, routine landscaping, agricultural land clearing, storms, or natural disasters.

“Leaf composting” or “composting of leaves” as defined in Section 22a -208i (a)-1 of the RCSA means the accelerated aerobic biodegradation and stabilization of leaves under controlled conditions.

“P.E.” means Professional Engineer licensed in the state of Connecticut.

“Processing” means the practice by which either the physical characteristics or the volume of solid waste accepted at the Facility is being altered through separating, sorting, baling, shredding, crushing, grinding, chipping, compacting, consolidation, anaerobic digestion, composting, transfer or reworking as part of recycling and/or volume reduction operations.

“Recyclable items” are materials which are designated for recycling pursuant to Section 22a-241b of the CGS or Sections 22a-241b-1 to 22a-241b-4 of the RCSA or which may be recovered from the solid waste stream and for which there is a demonstrated market for reuse or that may be beneficially used in the production of other products.

“Source-separated organic material” or “SSOM” as defined in Section 22a-207(29) of the CGS means organic material, including, but not limited to, food scraps, food processing residue and soiled or unrecyclable paper that has been separated at the point or source of generation from nonorganic material.

“SSOM Residue” means all solid waste that remains after the recovered materials have been extracted from the SSOM, clean wood, leaves and grass clippings authorized for processing at the Facility. SSOM Residue shall not include the solid waste derived through the de-packaging processing of Packaged SSOM at the Facility.

“Treated Wood” as defined in Section 22a-209a(a)(2) of the CGS means wood which contains an adhesive, paint, stain, fire retardant, pesticide or preservative.

“Windrow” as defined in Section 22a-208i(a)-1 of the RCSA means an elongated pile of leaves formed for the purpose of composting.

3. The Permittee shall comply with all terms and conditions of this Permit. This Permit consists of the conditions contained herein and the specifications contained in the application documents, except where such specifications are superseded by the more stringent conditions contained herein. Violation of any provision of this Permit may be subject to enforcement action pursuant, but not limited, to Sections 22a-6, 22a-208, 22a-225 and 22a-226 of the CGS.
4. The Permittee shall make no changes to the specifications and requirements of this Permit, except in accordance with law.
5. To the extent that any term or condition of this Permit is deemed to be inconsistent or in conflict, with any term or condition of any Permit previously issued for this Facility, including any modifications thereto, or with any data or information contained in the application, or any other documents incorporated by reference in this Permit, the term or condition of this Permit shall control and remain enforceable against the Permittee.
6. The Permittee shall submit for the Commissioner’s review and written approval all necessary documentation supporting any proposed physical and/or operational upgrades, improvements and/or minor changes in the Facility design, practices or equipment. The Commissioner may issue a written approval only if, in the Commissioner’s judgment, the proposed physical and/or operational upgrades, improvements and/or minor changes: (a) are deemed necessary for a better and more efficient operation of the Facility; (b) do not significantly change the nature of the Facility, or its impact on the environment; and (c) do not warrant the issuance of a permit or authorization pursuant to Section 22a-208 of the CGS.

**B. AUTHORIZATION TO CONSTRUCT AND MAINTAIN**

1. The Permittee is authorized to construct the Facility in accordance with all applicable law, including this Permit. The Facility shall consist of three (3) separate solid waste management areas consisting of an Anaerobic digester which incorporates pulping and de-packaging activities, a Clean wood processing area, and a leaf and grass clipping composting area. The three solid waste management areas shall be constructed as follows:
  - a. Anaerobic Digestion System that consists of the following:
    - i. A 1,600 square foot operations building, housing the Facility office and laboratory;
    - ii. A 750,000 gallon Anaerobic Digester/dual purpose tank;
    - iii. A 230,000 gallon Equalization tank;
    - iv. A 12,000 gallon underground Dilution tank;
    - v. Two (2) 12,000 gallon underground concrete liquid SSOM receiving tanks;

- vi. A 784 square foot clean solids SSOM receiving pit with a thirty (30) cubic yard (cy) vertical feed mixer hopper which includes a feedstock grinder, SSOM receiving discharge hopper, and macerator with integrated rock catcher; and
- vii. A 10,000 square foot building of which 4,000 square feet is dedicated to the pulping and de-packing (P&D) activity. The P&D area includes the following equipment and other features: a Wackerbauer Separation Mill TM 75 which has a processing capacity of fourteen (14) to twenty-four (24) tons per hour, a pump feeding tank with discharge screw conveyor, a thirty (30) cy receiving hopper/vault which is open and exposed at the ground surface, a funnel hopper; a 12,000 gallon underground tank for pulped SSOM; a conveyor for digestate solids; and storage area(s) for packaged food, Facility generated recyclables, digestate solids and SSOM residue;

b. Clean Wood Processing areas consisting of:

- i. Two (2) Clean wood storage and processing areas (“CWP”), identified as CWP#1 (existing) and CWP#2 (to be established);
- ii. CWP #1, which is located on a 1.99 acre portion in the northwest corner of the 37.24 acre parcel owned by the Permittee. CWP #2 is located on a 1.49 acre portion of a 19.33 acre parcel leased by the Permittee from the Town of Southington, and such activity is located on the northern end of the Town’s closed landfill;
- iii. CWP#2, for which the base pads shall be constructed with compacted and well-drained soil; at least two (2) feet in thickness; be sloped at three to five percent (3%-5%) to promote drainage and designed to support heavy equipment during all seasons;
- iv. Outdoor storage areas for processed clean wood, which shall be constructed with a two to three percent (2%-3%) slope; at least two (2) feet thick, constructed of compacted, well drained materials, and designed for heavy equipment use during all seasons; and
- v. Clean wood processing shall use one or more of the following processing equipment: shredders, grinders, chippers, loaders, backhoe, dozer, and excavators;

c. Composting of leaves and grass clippings areas shall consist of:

- i. The existing composting area comprises 4.77 acres of the Facility;
- ii. The composting pad is constructed of well-drained materials, designed for heavy equipment use in all seasons, has a slope between two and five percent (2-5%); and is graded and maintained to minimize ponding;
- iii. The composting area shall have a maximum of ten (10) windrows not to exceed twelve (12) feet in height and twenty (20) feet in width at their base, constructed on the compost pad perpendicular to the contours of the ground surface and sufficient aisle space to allow for access of heavy equipment; and
- iv. The composting activity shall use one or more of the following of processing equipment: loaders, excavators, water truck, high tip bucket, shredders and grinders.

2. The Permittee is authorized to construct the Facility's solid waste management areas noted in B.1. of this Permit for the purposes of receiving and processing no more than a total of the following at each of the solid waste management areas:
  - a. Anaerobic Digestion: 144 tons per day (tpd) of SSOM, received for processing at the clean solids SSOM and the liquid SSOM receiving areas; and 336 tpd of packaged SSOM or commingled source separated organic material received for processing at the pulping and de-packaging building;
  - b. Clean Wood Processing: 500 tpd of Clean wood including Land clearing debris received for processing; and
  - c. Composting: 100 tpd of leaves and grass clippings received for processing.
3. The Permittee is authorized to maintain the Facility as described in Condition No. B.1 of this Permit.
4. The Permittee shall control dust, odors, water discharges and noise resulting from the construction and maintenance of the Facility at all times to assure compliance with applicable requirements of the RCSA, and any other applicable laws, including OSHA.
5. The Permittee shall, within thirty (30) days from the completion of the construction, as described in Condition B.1. above, submit a written notification for the Commissioner's review and written approval. Such notification shall include at a minimum:
  - a. P.E. certified statement that the construction of the Facility has been completed as approved;
  - b. P.E. certified as-built drawings; and
  - c. A request for written authorization from the Commissioner to operate in accordance with Condition Nos. C. 4. and C. 5. of this Permit.

**C. AUTHORIZATION TO OPERATE**

1. The Permittee is authorized to operate any or all of the components specified in Condition No. B.1. of this Permit, upon written approval granted by the Commissioner. Such written approval shall be issued after the Permittee is deemed in full compliance with, but not limited to, the requirements of Condition No. B.5. of this Permit.
2. The Permittee shall not exceed the processing and storage limits established by this Permit. Solid waste, other than those listed herein, shall not be accepted, processed, treated, stored, transported, disposed on-site, or otherwise managed at the Facility without prior written approval of the Commissioner.
3. The Permittee is authorized to operate the Facility in accordance with all applicable law, including this Permit. Unless otherwise approved in writing by the Commissioner or limited by local authorities, the Permittee is authorized to operate as follows:

Anaerobic Digestion: Receive for processing SSOM, Monday through Friday 7:00 a.m. to 5:00 p.m. and Saturday 7:00 a.m. to 5:00 p.m.; and process SSOM twenty-four (24) hours per day seven (7) days a week; and

Clean Wood Processing and Composting of leaves and grass clippings: Receive and process Monday through Friday 7:00 a.m. to 5:00 p.m. and Saturday 7:00 a.m. to 5:00 p.m.

4. The Permittee is authorized to receive and process at each of the Facility's solid waste management areas no more than the daily limits specified below:
  - a. Anaerobic Digestion: (i) 144 tpd of SSOM received at the clean solids (>12% solids content) and liquid ( $\leq$ 12% solid content) SSOM receiving areas; and (ii) 336 tpd of package SSOM or commingled source separated organic material at the pulping and de-packaging building;
  - b. Clean Wood Processing: 500 tpd of clean wood including land clearing debris; and
  - c. Composting: 100 tpd of leaves and grass clippings at the composting area.
5. The Permittee shall store and manage solid waste at the Facility only in the designated areas as identified in the engineering drawings referenced in Condition No. A.1.a. of this Permit and in accordance with the table below. Fully loaded containers of solid waste shall be transferred from the Facility within two (2) business days.

**Storage Table**

Storage Areas <sup>1</sup>	Feedstock Anaerobic Digestion - SSOM Clean Wood Leaves and Grass Clippings	Volume Cubic Yards	Storage Specifications and Comments
A	SSOM	1,139	230,000 gallon - Equalization Tank
B	SSOM	3,713	750,000 gallon - Anaerobic Digester/dual purpose tank
C	Liquid SSOM ( $\leq$ 12% solids content)	119	Liquids Receiving Area
D	Clean Solids SSOM ( $>12\%$ solids content)	30	Clean Solids SSOM receiving pit
E	Packaged SSOM and/or Commingled SSOM (unpackaged SSOM containing inorganic materials)	30	Receiving pit located within the pulping and de-packaging building
F	Packaged SSOM	167	Stored within the pulping and de- packaging building
G-1	Digestate Filtrate (liquid fraction of digestate)	59	12,000 gallon underground Dilution tank
G-2	Liquid SSOM	59	12,000 gallon underground Pulp tank for processed (feedstock slurry) packaged SSOM
H	Facility generated recyclables (plastic, paper and metal) and/or Residue	Combined total 30	Stored in containers within the pulping and de-packaging building
I	Digestate Solids	90	Stored in containers within the pulping and de-packaging building
J	Unprocessed Clean Wood	28,001	Located at CWP#1
K	Processed Clean Wood	8,066	Located at CWP#1
L	Unprocessed Clean Wood	26,923	Located at CWP#2
M	Processed Clean Wood	7,766	Located at CWP#2
N	Leaves and Grass Clippings	27,000	Maximum storage on the compost pad

<sup>1</sup> As identified on the engineering drawings referenced in Condition No. A.1.a. of this Permit.

**a. Anaerobic Digestion**

The Permittee shall ensure that:

- i. All SSOM which includes: liquid SSOM, packaged SSOM, clean solids SSOM and commingled SSOM are managed in enclosed containers, indoors or using systems so as to inhibit and/or mitigate generating off-site odors and attracting vectors;
- ii. Storage and management of SSOM as received, is conducted at three (3) dedicated receiving areas (liquid SSOM, clean solids SSOM and pulping and de-packaging), five (5) tanks (anaerobic digester, equalization, two (2) liquid, pulp) and one dilution tank for digestate filtrate:
  - (A) Two (2) underground liquids receiving tanks, maximum combined storage 24,000 gallons;
  - (B) Clean solids pit, maximum storage thirty (30) cubic yards ;
  - (C) Pulping and de-packaging receiving pit and tipping floor, maximum storage 197 cubic yards;
  - (D) Anaerobic digester, maximum storage 750,000 gallons;
  - (E) Equalization tank, maximum storage 230,000 gallons;
  - (F) Pulp tank, maximum storage 12,000 gallons; and
  - (G) Dilution tank, maximum storage 12,000 gallons;
- iii. SSOM is processed on a first in/first out basis and shall have all non-organic materials removed prior to being fed into the Anaerobic digestion system;
- iv. Digestate solids are:
  - (A) Stored in containers within the pulping and depackaging building and shall not exceed ninety (90) cubic yards;
  - (B) Transferred from the Facility within forty-eight (48) hours, of dewatering with the exception of legal holiday weekends;
  - (C) Transferred from the Facility to markets, recycling facilities and/or other solid waste facilities which are authorized to accept such solid waste for recycling, which may include, but is not limited to composting and soil blending; and
  - (D) Not incinerated, unless approved in writing by the Commissioner; and
- v. That negative air pressure is maintained within the pulping and depackaging building and that the doors remain closed except when trucks are entering or exiting the building.

**b. Clean Wood Storage and Management:** Storage of clean wood (brush; land clearing debris,) shall take place in either container(s) or in piles located on the ground in the areas identified on the engineering drawings referenced in Condition No. A.1.a. of this Permit.

Piles of unprocessed clean wood shall: have a minimum of a twenty-five (25) foot emergency access maintained around them; a maximum height of twenty-five (25) feet, not contain treated wood; be processed and transferred on a first-in/first-out basis. Unprocessed clean wood stored in designated areas at the Facility shall not exceed 28,001 cubic yards at CWP#1 and 26,923 cubic yards at CWP#2.

Piles of processed clean wood chips stored at the Facility in designated areas shall not exceed 8,066 cubic yards at CWP#1 and 7,766 cubic yards at CWP#2. Piles of processed clean wood shall have a maximum height of fifteen (15) feet; be stored on base pads constructed of compacted and well drained material that can support heavy equipment during all seasons; minimize dust and prevent ponding of water; be shaped to allow adequate stormwater run-off; be

oriented (for elongated piles) perpendicular to the contours of the ground surface; be located in a clearly marked area equipped with stormwater run-on/run-off controls which comply with all existing permits and/or any applicable stormwater management requirements of Section 22a-430 and Section 22a-430b of the CGS.

- c. **Wood chipping activities** shall comply with the requirements of Sections 22a-174-18, 22a-174-23 and 22a-174-29 of the RCSA; and shall not generate noise, dust, fumes, smoke, vibrations or odors that exceed background levels thereof at any boundary of the property on which the Facility is located. Wood chipping activities conducted on top of the landfill (closed in accordance with Sections 22a-209-1 through 13 of the RCSA) at CWP#2 shall take place on a base pad to prevent disruption of the landfill cap and underlying solid waste. The base pad shall be: constructed of compacted and well-drained soil; designed to support heavy equipment during all seasons; at least two (2) feet in thickness (as required by Sections 22a-209-7(1) and 13(e) of the RCSA); and be sloped at 3%-5% to promote drainage.
- d. **Composting (leaves and grass clippings)**
  - i. The Permittee shall store and manage leaves and grass clippings in the area identified on the engineering drawing referenced in Condition No. A.1.a. of this Permit and accordance with Section 22a-208i(a)-1 of the RCSA.
  - ii. The Permittee is authorized to construct and manage a maximum of ten (10) windrows in accordance with the following:
    - (A) The windrows shall not exceed twelve (12) feet in height and twenty (20) feet in width at their base;
    - (B) The total volume materials being composted on the compost pad shall not exceed 27,000 cubic yards; and
    - (C) The windrows shall be oriented on the compost pad perpendicular to the contours of the ground surface and the layout shall allow for access of heavy equipment.
  - iii. The Permittee shall:
    - (A) Minimize dust emissions from stationary and mobile equipment;
    - (B) Maintain a moisture content within the windrows between forty percent (40%) and sixty percent (60%), for optimal composting and in order to minimize Aspergillus Fumigatus ("AF") and dust releases during windrow turning. Should moisture content drop below the forty percent (40%) level, windrows shall be watered sufficiently just prior to turning to control AF and dust;
    - (C) Measure and record the internal temperature of the windrows at least once every fourteen (14) days at fifty (50) foot intervals along the windrows. The thermometer shall be inserted into the center of the windrow when internal temperature is being measured; and
    - (D) At least once every two (2) weeks record the following parameters during windrow turning: weather conditions, wind direction, ambient air temperature, presence of odor or dust, compost pad condition, windrow moisture, corrective actions needed, and corrective actions taken. Such inspection shall be maintained by the Permittee for the life of the Permit and provided to the Commissioner upon request.
  - iv. The Permittee shall receive, store and manage grass clippings in accordance with the following:
    - (A) Receipt, management and composting of grass clippings shall take place at least 1,000 feet from any occupied building other than an owner occupied building at which the facility is located;

- (B) The Facility shall maintain a turned windrow method of composting;
- (C) Grass clippings received in plastic bags, including but not limited to biodegradable plastic bags, shall be emptied from such bags on the same day as receipt;
- (D) Grass clippings received in paper bags shall be shredded or broken open on the same day as receipt and at no time shall bagged grass clippings be incorporated directly into a windrow;
- (E) Prior to blending grass clippings into windrows the Permittee shall ensure that the interior of the windrow is of a high enough moisture content between forty-five (45) and fifty (50) percent;
- (F) Grass clippings shall be thoroughly blended with leaves on the day of receipt in a ratio by volume of one-part grass clippings to not less than three parts leaves. The receipt of grass clippings shall immediately cease when there is an insufficient leaves to maintain the ratio;
- (G) Grass clippings shall not be stockpiled overnight;
- (H) The addition of grass clippings shall not interfere with the operation and maintenance of the Facility; and
- (I) The addition of grass clippings shall not cause nuisance odors as defined in Section 22a-174-23 of the RCSA.

6. The Permittee shall:

- a. Store solid waste on-site in conformance with proper fire control measures. Routine maintenance and inspections of all fire control equipment shall be conducted in accordance with manufacturer's specifications;
- b. Ensure that all solid waste accepted at the Facility is properly managed on-site, processed, stored and transported to markets or other solid waste processing or disposal facilities authorized to accept such solid waste;
- c. Process loads of SSOM, clean wood, leaves and grass clippings and segregate any non-organic materials from organic materials to be processed through anaerobic digestion, composting and wood chipping. Any Facility Generated Recyclables and/or SSOM Residue shall be transferred from the Facility to recycling markets or facilities authorized to receive and process such solid waste. The Permittee shall determine and report to the Commissioner, for each quarter of operations, the percent contamination rate in incoming loads of SSOM by weight.
- d. Ensure that any unauthorized solid waste inadvertently received, or solid waste which is unsuitable for processing at the Facility is: (i) immediately sorted, separated, isolated and temporarily stored in a safe manner prior to off-site transport; (ii) recorded and reported in the quarterly report required by Condition No. C.10. of this Permit; and (iii) disposed at a facility authorized to accept such solid waste. No more than thirty (30) cubic yards of unacceptable solid waste shall be stored on-site unless authorized in writing by the Commissioner. A spare container may be made available for any storage emergency at the Facility;
- e. Provide expeditious notification regarding any emergency incident (explosion, accident, fire, release, or other significant disruptive occurrence) which: (i) significantly damaged equipment or structures; (ii) interrupts the operation of the Facility for greater than twenty-four (24) hours; (iii) results in an unscheduled

Facility shutdown or forced diversion of solid waste to other solid waste facilities; (iv) could reasonably create a source of pollution to the waters of the state; or (v) otherwise threatens public health.

Such notification shall be: (i) be immediately conveyed to the Commissioner using the 24-hour emergency response number (860) 424-3338 or the alternate number (860) 424-3333 and in no event later than twenty-four (24) hours after the emergency incident; (ii) verified to the Solid Waste Program in the Waste Engineering and Enforcement Division of the Bureau of Materials Management and Compliance Assurance by phone at (860) 424-3366, or at another current publicly published number for the Solid Waste Program, or by facsimile at (860) 424-4059; (iii) followed by a written report no later than the fifth business day after the emergency incident detailing the cause and effect of the incident, remedial steps taken and emergency backup used or proposed to be implemented; and (iv) be recorded in a log of emergency incidents. In addition to the notification requirements above, the Permittee shall comply with all other applicable reporting or notification requirements regarding the emergency incident including but not limited to, reporting required by Section 22a-450 of the CGS;

- f. Prevent the spillage of solid waste from transfer containers during on-site management, storage and off-site transfer. Each loaded container shall be covered before transfer off-site and the haulers shall be instructed to keep the containers covered during off-site transportation;
- g. Operate the Facility in a safe manner so as to control fire, odor, noise, spills, vectors, litter and dust emission levels in continuous compliance with all applicable requirements, including OSHA. The Facility's premises shall be maintained and any litter shall be removed on a daily basis;
- h. Ensure that the manufacturer's operation and maintenance manuals for each major piece of fixed or mobile processing equipment, (which may include, but not be limited to, grinders; conveyors; separation mill; and storage tanks) installed or used at the Facility are available for review by the Commissioner;
- i. Determine through observation that incoming loads of SSOM do not contain greater than ten percent (10%) by volume ("threshold contaminant percentages") of designated recyclable items. For any loads identified that exceed the threshold criteria for load contamination specified in this condition the Permittee shall document each load in the daily log and report those to the Department in the quarterly reports required by this Permit. The Permittee shall also provide notice to the hauler in accordance with Condition No. C. 6. k.v.
- j. Manage solid wastes in such a manner that all recyclable materials are segregated so that no other solid waste may cause contamination or degradation of the recyclable product, or result in any negative impact on the recyclability of such material;

- k. Conduct periodic unannounced inspections of truck loads delivered to the Facility, pursuant to Section 22a-220c(b) of the CGS. The inspections shall be performed for a minimum of five percent (5%) of the monthly truck loads received that are representative of the waste types authorized for receipt at the Facility. Records of such inspections shall be maintained at the Facility for the life of the Permit or such other timeframe specified in writing by the Commissioner. The inspections and supporting documentation shall consist of at a minimum:
  - i. Photographs of each load of SSOM inspected that exceeds the threshold contaminant percentages as specified in Condition No. C.6.i. of this Permit and each load of source separated recyclable items that exceeds five percent (5%) by volume of non-recyclable wastes;
  - ii. Origin of each load (municipality; regional facility and whether commercial or residential);
  - iii. Waste transporter company name;
  - iv. Estimated percentage of contaminant(s) present in each load and identification of each type; and
  - v. Immediate written notifications to the hauler, municipality in which the solid waste was generated and/or regional facility for each load that exceeds the threshold contaminant percentages specified in Condition No. C.6.i. of this Permit.
- l. The Permittee shall determine the SSOM Residue as an average contaminant rate based on the first four consecutive quarters of operations at the Facility. Within ninety (90) days after the fourth complete quarter of operations, the Permittee shall implement steps to reduce the baseline contamination rate of non-organic materials in incoming loads of SSOM excluding Package SSOM. On or before the eighth complete quarter of operations, the Permittee shall have achieved a decrease by thirty percent (30%).

The Permittee shall document in the quarterly report and the year-end report the efforts and actions implemented to reduce the baseline contaminant rate in SSOM received at the Facility.

- 7. The Permittee shall have an operator, certified pursuant to Section 22a-209-6 of the RCSA, present at all times during Facility operation. All individuals under the supervision of such certified operator shall have sufficient training to identify solid waste received at the Facility which is not permitted to be received, or is unsuitable for processing, and shall take proper action in managing such solid waste.
- 8. The Permittee shall prominently post and maintain a sign at the Facility entrance pursuant to 22a-209-10(3) of the RCSA that includes the Facility's name and the Department Permit number (Permit to Construct and Operate No. \_\_\_\_\_) issuance date and expiration date. Such sign shall also include a phone number that provides the general public the ability to register questions or complaints twenty-four (24) hours per day. The Permittee shall maintain a log of all calls received and how such calls were addressed or resolved. The Permittee shall also post a sign in accordance with Section 22a-636 of the CGS.

9. The Permittee shall: (a) control all traffic related to the operation of the Facility in such a way as to mitigate queuing of vehicles off-site and any excessive or unsafe traffic impact in the area where the Facility is located; (b) unless otherwise exempted, ensure that vehicles are not left idling for more than three (3) consecutive minutes pursuant to Section 22a-174-18(b)(3) of the RCSA; (c) prominently post and maintain signs limiting such vehicle idling time within the Facility.
10. The Permittee shall maintain daily records as required by Section 22a-209-10(13) of the RCSA and Sections 22a-208e and 22a-220 of CGS. Based on such records, the Permittee shall prepare monthly summaries including, but not limited to, the following information as it pertains to solid waste:
  - a. Type and quantity of solid waste received, including all SSOM, clean wood, leaves and grass clippings, Facility Generated Recyclables, Recyclable items, SSOM Residue, unauthorized solid waste and/or universal waste;
  - b. Origin of waste load (municipality name; regional facility name) and waste hauler name;
  - c. Destination to which solid wastes, Digestate solids, Facility Generated Recyclables, including all Recyclable Items, and unauthorized solid waste from the Facility were delivered for disposal or recycling, including quantities delivered to each destination; and
  - d. All daily logs (including documentation related to the unannounced inspections of truck loads) shall be maintained for the life of this Permit or such other timeframe specified in writing by the Commissioner.

The monthly summaries required pursuant this condition shall be submitted quarterly no later than January 31, April 30, July 31, October 31, of each year on up-to-date forms prescribed by the Commissioner directly to the Solid Waste Program, Waste Engineering and Enforcement Division, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127.

11. The Permittee shall ensure that all clean wood received at the Facility is inspected for signs of the presence of the Asian Longhorn Beetle and the Emerald Ash Borer. Signs indicating possible Asian Longhorn Beetle infestation can be found at the CT DEEP webpage: <http://www.ct.gov/deep/alb> Signs indicating possible Emerald Ash Borer infestation can be found at the CT DEEP webpage: <http://www.ct.gov/deep/eab>
  - a. The Permittee shall ensure each load of clean wood is visually assessed for possible pest infestation as part of the on-site routine inspections.
  - b. Any clean wood suspected of being infested by either the Asian Longhorn Beetle or the Emerald Ash Borer should be identified at the source of generation and managed in accordance with existing quarantine agreements.
  - c. If signs of infestation are observed:  
Digital photos and careful identification notes must be provided to the Connecticut Agricultural Experiment Station (Deputy State Entomologist direct phone line: 203-974-8474; and e-mail [CAES.StateEntomologist@ct.gov](mailto:CAES.StateEntomologist@ct.gov)).
    - i. The infested clean wood shall be: segregated from other clean wood; marked as segregated; securely stored and kept reasonably intact.

- ii. Any handling activities (e.g. chipping and moving) shall be postponed until an investigator from, or designated by, the Connecticut Agricultural Experiment Station, has examined the potentially infested clean wood.
- iii. Any truck load tickets and other documentation of deliveries shall note whether a pest infestation assessment has been conducted.

12. Nothing herein authorizes any person, municipality or authority to hinder municipal or regional solid waste recycling efforts. All activities conducted by the Permittee at the Facility shall be in accordance with this Permit and consistent with the state-wide Solid Waste Management Plan, pursuant to Sections 22a-228 and 229 of the CGS.

13. The Permittee shall, no later than sixty (60) days after the issuance of the written authorization to operate, pursuant to Condition No. B.5. of this Permit, establish for the Commissioner's benefit an acceptable financial assurance instrument and post the financial assurance with the Department in the amount of \$1,378,870.00 as required by Section 22a-6(a)(7) of the CGS in conjunction with the general requirements of Section 22a-209-4(i) of the RCSA.

14. The Permittee shall acknowledge and accept the following:

- a. The purpose of the financial assurance is to cover the third party costs for handling, removing, transporting and disposing the maximum Permitted amount of unprocessed and processed solid waste at the Facility, and any additional cost(s) to ensure the proper closure of storage areas including, but not limited to, equipment rental, site clean-up, the decontamination and disposal of all equipment and processing and storage areas, and a fifteen percent (15%) contingency to cover unforeseen events or activities that may increase the overall cost to close the Facility.
- b. The financial assurance instruments shall follow the requirements of Section 22a-209-4(i) of the RCSA, and 40 CFR 264.141 to 264.143 inclusive and 40 CFR 264.151, as referenced therein. The Permittee shall ensure that the financial assurance instrument is established in a format specified by the Commissioner for closure or post-closure maintenance and care, as appropriate.
- c. The Department accepts five (5) types of financial assurance instruments, they are: (a) Trust Fund; (b) Irrevocable Standby Letter of Credit; (c) Financial Guarantee "Payment" Bond; (d) Performance Bond; and (e) Certificate of Insurance. The following documents are also required to be submitted:
  - i. A cover letter signed by the Permittee shall be submitted along with the Irrevocable Standby Letter of Credit, in accordance with Section 40 CFR 264.143(d)(4).
  - ii. A "Standby Trust Agreement" shall be submitted along with either a Irrevocable Standby Letter of Credit; Financial Guarantee "Payment" Bond; or Performance Bond; and
  - iii. A "Certification of Acknowledgement" shall be submitted along with the Trust Fund instrument.

**D R A F T 12/03/15, 02/02/16, 02/22/16, 03/01/16**

- d. The financial assurance shall:
  - i. Be valid for and appropriately maintained during the term of this Permit;
  - ii. Specify the Permittee's name, the Facility's address, the number and issuance date of this Permit; and
  - iii. Be established in one or more of, the instrument formats found on the Department's website [www.ct.gov/DEEP/financialassurance].
- e. The financial assurance instrument shall be adjusted annually for inflation within the sixty (60) days prior to the anniversary date of the financial assurance instrument, and whenever there is a change in operations that affects the cost of closing the Facility in accordance with the requirements of 40 CFR 264.142(b) as incorporated in the Section 22a-449(c)-104 of the RCSA.

15. The Permittee shall, no later than sixty (60) days from the issuance of the Commissioner's written authorization, pursuant to Condition No. B.5. of this Permit, perform quarterly compliance audits for the life of this Permit.

- a. The compliance audits required by this condition shall consist of a thorough and complete assessment of the Permittee's compliance with Sections 22a-209-1 through 22a-209-17 of the RCSA, Section 22a-207e(c) of the CGS and with the terms and conditions of this Permit.
- b. Compliance Auditor  
The compliance audits required by this condition shall be performed by an engineer licensed to practice in Connecticut ("P.E.") or consultant. Such P.E. or consultant shall be approved in writing by the Commissioner and will be required to prepare and submit to the Commissioner quarterly compliance audit reports.

The Permittee shall, prior to the Commissioner's approval of the P.E. or consultant: (a) submit for the Commissioner's evaluation a detailed description of the P.E. or consultant's credentials (education; experience; training) which are relevant to the work required under this condition; and (b) certify to the Commissioner that such P.E. or consultant:

- i. Is not a subsidiary of or affiliated corporation to the Permittee or Permitted Facility;
- ii. Does not own stock in the Permittee or any parent, subsidiary, or affiliated corporation;
- iii. Has no other direct financial stake in the outcome of the compliance audit(s) outlined in this Permit;
- iv. Has expertise and competence in environmental auditing and the regulatory programs being addressed through this Permit, including evaluation of compliance with requirements specified in Sections 22a-209-1 through 22a-209-17 of the RCSA, 22a-22e(c) of the CGS, and with the terms and conditions of this Permit; and
- v. Within ten (10) days after retaining any P.E. or consultant other than the one originally indentified pursuant to this condition, notify the Commissioner in writing of the identity of such other P.E. or consultant by submitting the information and documentation specified in this condition. Nothing in this condition shall preclude the Commissioner from finding a previously acceptable P.E. or consultant unacceptable.

c. Scope of Compliance Audits

Compliance audits shall:

- i. Detail the Permittee's compliance with the requirements of this Permit and all applicable provisions of Sections 22a-209-1 through 22a-209-17 of the RCSA; and
- ii. Describe the Compliance Auditor's participation in and the results of compliance audits conducted at the Facility on the loads of solid waste received at the Facility during the compliance audit. The purpose of such inspections is to determine whether such loads are being received that contain greater than ten percent (10%) by volume designated recyclable items; whether loads of source separated recyclable items contain greater than two percent (2%) by volume of non-recyclable wastes; and to detect patterns associated with such loads. Unless otherwise approved by the Commissioner, the compliance auditor shall inspect solid wastes unloaded from a minimum of ten (10) trucks received during the day of the compliance audit. The Compliance Auditor shall document the actual number of truck loads inspected and the findings of such inspections.

d. Compliance Audit Report

The results of each compliance audit shall be summarized in a Compliance Audit report. At a minimum such report shall include:

- i. The names of those individuals who conducted the compliance audit;
- ii. The areas of the Facility inspected;
- iii. The records reviewed to determine compliance;
- iv. A detailed description of the Permittee's compliance with this Permit and applicable regulations;
- v. The identification of all violations of this Permit and applicable regulations;
- vi. A description of the actions taken by the Permittee to correct patterns of loads received that exceed the threshold contaminant percentages specified in Condition No. C.6.i. for loads that are representative of the waste types authorized for receipt at the Facility;
- vii. The findings regarding the inspections conducted in accordance with this condition during the day of the compliance audit.
- viii. A description of the actions taken by the Permittee to correct the violation(s) identified in each compliance audit; and
- ix. The Permittee's certification of compliance with the regulations and documentation demonstrating such compliance pursuant to this Permit. In cases where multiple counts of the same violation are discovered, the report shall include a listing of each count.

e. Permittee's Responses to Compliance Audit

The Permittee and P.E. or consultant shall comply with the following:

- i. The inspection frequency shall be quarterly for the remaining life of the Permit;
- ii. All violations shall immediately be brought to the attention of the Permittee by the P.E. or consultant. The P.E. or consultant shall also

notify the Department within five (5) days of the inspection of all violations noted during the inspection;

iii. The Permittee shall correct all violations immediately. Should the Permittee be unable to immediately correct the violation, the Permittee within seven (7) days of the notification date, shall submit for the review and written approval of the Commissioner, a detailed plan to correct all violations noted. Such plan shall also include a schedule for implementation of the corrective actions required or recommended; and

iv. Within fifteen (15) days from the inspection date the P.E. or consultant shall submit, to the Department and the Permittee, the compliance audit report. A copy of the compliance audit report, shall be maintained at the Facility for the life of the Permit or for such other timeframe specified by the Commissioner.

f. The Permittee shall cease accepting solid waste at the Facility in the event that the Permittee fails to submit in a timely manner the plan and schedule required by Condition No. 15. e. of this Permit or fails to correct the violations noted by the inspection(s) in accordance with the approved plan and schedule.

g. **Documentation Submittal Deadlines**  
The documents required to be submitted pursuant to this condition shall be submitted quarterly no later than January 31, April 30, July 31, October 31, directly to the Solid Waste Enforcement Program, Waste Engineering and Enforcement Division, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127.

16. Unless otherwise specified in writing by the Commissioner, any documents required to be submitted under this Permit shall be directed to:

Solid Waste Program  
Waste Engineering and Enforcement Division  
Bureau of Materials Management and Compliance Assurance  
Department of Energy and Environmental Protection  
79 Elm Street, Hartford, CT 06106-5127

17. Any document, including, but not limited to any notice, which is required to be submitted to the Commissioner under this Permit shall be signed by a duly authorized representative of the Permittee, as defined in Section 22a-430-3(b)(2) of the RCSA, and by the individual or individuals responsible for actually preparing such documents, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement in the submitted information may be punishable as a criminal offense."

Any false statement in any document submitted pursuant to this Permit may be punishable as a criminal offense in accordance with Section 22a-6 of the CGS, pursuant to Section 53a-157 of the CGS, and in accordance with any other applicable statute.

18. The date of submission to the Commissioner of any document required by this Permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this Permit, including but not limited to, notice of approval or disapproval of any document or other action shall be the date such notice is personally delivered or the date three (3) days after it is mailed by the Commissioner, whichever is earlier. Any document or action which is due or required on a weekend or a legal state or federal holiday shall be submitted or performed by the next business day thereafter.
19. This Permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to, any and all public and private rights and to any federal, state or local laws or regulations pertinent to the Facility or activity affected thereby.
20. Nothing in this Permit shall affect the Commissioner's authority to institute any proceeding or to take any actions to prevent violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law.
21. Nothing in this Permit shall relieve the Permittee of other obligations under applicable federal, state and local laws.
22. This Permit shall expire five (5) years from the date of issuance and may be revoked, suspended, modified, renewed, or transferred in accordance with applicable laws.

Issued on this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

By \_\_\_\_\_  
Michael Sullivan  
Deputy Commissioner

Application No. 201303057  
Permit to Construct and Operate No. insert Permit no.  
Permittee - Certified # or e-Certified   
City/Town Clerk - Certified# or e-Certified

# EXHIBIT 8

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*DR. BRIAN JONES LETTER, DATED  
JANUARY 26, 2016*



January, 26, 2016

Attn: Patricia Carter  
Senior Survey Technician  
Loureiro Engineering Associates, Inc.  
100 Northwest Drive  
Plainville, CT 06062

**Re. Anaerobic Digester and Combined Heat and Power Unit, DePaolo Drive, Southington**

Dear Ms. Carter,

Thank you for the opportunity to review the above-named project for its potential impacts to historical and archaeological resources. As you have stated in an email of December 14, 2015, Loureiro Engineering Associates has been retained by Quantum Biopower Southington, LLC to prepare an Environmental Assessment for filing to the CT Siting Council of the parcel of land located north and west of DePaolo Drive in Southington. The facility will operate an anaerobic digester and Combined Heat and Power (CHP) unit on approximately 2 acres of the 15.47 acres parcel.

To aid your Environmental Assessment I have evaluated the proposed undertaking's potential impact within its Area of Potential Effect (APE) to National Register eligible historical properties. No archaeological or historical sites are documented within the project bounds, and none are anticipated to be visually affected by the proposed development. Examination of aerial photography indicates that the APE itself has undergone pervasive ground disturbance as part of a sand and gravel mining operations. The proposed undertaking is therefore expected to have *No Effect* on previously unidentified archaeological or historical resources. It should be noted, however, that final review authority for this undertaking lies with the State Historic Preservation Office.

While I do not anticipate that any Native American or historic-era archaeological deposits will be impacted, should construction activity result in the inadvertent exposure of artifacts, bones or charcoal-rich soil deposits, please have the construction crew contact my office immediately so that I can assess the situation. If you have any questions, please feel free to reach me directly at 860-299-5769.

Sincerely,

Brian D. Jones, Ph.D.  
State Archaeologist

cc: Catherine Labadia, Deputy SHPO  
Office of State Archaeology  
Connecticut State Museum of Natural History  
2019 HILLSIDE ROAD, UNIT 1023  
STORRS, CT 06269-1023  
Brian.Jones@uconn.edu  
PHONE 860.486.5248  
www.cac.uconn.edu; www.mnh.uconn.edu

*An Equal Opportunity Employer*

# EXHIBIT 9

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*NOTICE*



PHILIP M. SMALL  
direct dial: (860) 509-6575  
psmall@brownrudnick.com

March 4, 2016

185 Asylum  
Street  
Hartford  
Connecticut  
06103  
tel 860.509.6500  
fax 860.509.6501

**VIA FIRST CLASS MAIL**

Notice List Recipients

**Re:     Quantum Biopower Southington, LLC's  
Petition to the Connecticut Siting Council for Declaratory Ruling**

Dear Sir/Madam:

Pursuant to Section 16-50j-40 of the Connecticut Siting Council's (the "Council") regulations, we are notifying you that Quantum Biopower Southington, LLC, intends to file on or shortly after March 7, 2016, a Petition for Declaratory Ruling with the Council (the "Petition"). The Petition will request the Council's approval of the location and construction of an approximately 1.1 megawatt anaerobic digestion system (the "Facility") at 49 DePaolo Drive in Southington, Connecticut. The Facility will take in food waste and through a natural process that breaks down the food waste in the absence of oxygen (anaerobic digestion) will produce methane biogas. The methane biogas will be used to fuel a unit that produces usable heat in the form of hot water and electricity.

The Facility will be a "grid-side distributed resources" facility (as defined in Connecticut General Statute §16-1(a)(38)), under 65 megawatts that complies with the air and water quality standards of the Connecticut Department of Energy and Environmental Protection and will have no adverse environmental effect in the State of Connecticut.

If you have any questions regarding the Facility, please contact any of the following:

Brian Paganini  
Vice President & Managing Director  
Quantum Biopower Southington, LLC  
216 Bogue Road  
Harwinton, CT 06791  
Telephone: (860) 485-0343  
Fax: (860) 485-0349  
[bpaganini@quantumbiopower.com](mailto:bpaganini@quantumbiopower.com)

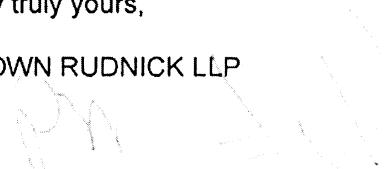
Philip M. Small, Esq.  
Franca L. DeRosa, Esq.  
Brown Rudnick LLP  
185 Asylum Street, 38th Floor  
Hartford, CT 06103  
Tel: (860) 509-6500  
Fax: (860) 509-6501  
[psmall@brownrudnick.com](mailto:psmall@brownrudnick.com)  
[fderosa@brownrudnick.com](mailto:fderosa@brownrudnick.com)

Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051  
Tel: (860) 827-2935  
Fax: (860) 827-2950  
[siting.council@ct.gov](mailto:siting.council@ct.gov)

Very truly yours,

BROWN RUDNICK LLP

By:

  
Philip M. Small

## **NOTICE LIST**

<i>MUNICIPAL OFFICIAL/AGENCY</i>	<i>NAME/ADDRESS</i>
Southington Chief Elected Officer	Michael A. Riccio, Chairman Southington Town Council Attn.: Town Manager's Office 75 Main Street P.O. Box 152 Southington, CT 06489
Southington Planning and Zoning Commission	Michael DelSanto, Chairman Planning and Zoning Commission Town of Southington 196 North Main Street Southington, CT 06489
Southington Director of Planning and Community Development	Robert A. Phillips, Director Planning and Community Development Town of Southington 196 North Main Street Southington, CT 06489
Southington Conservation Commission	Theresa Albanese, Chairman Conservation Commission Town of Southington 196 North Main Street Southington, CT 06489
Southington Water Commissioners	Michael S. Domian, President Board of Water Commissioners Town of Southington 605 West Queen Street P.O. Box 111 Southington, CT 06489
Regional Planning Agency – Southington	Capitol Region Council of Governments 241 Main Street Hartford, CT 06106-5310
Southington State Senator	Joe Markley, State Senator Legislative Office Building Room 3400 Hartford, CT 06106
Southington State Representative 30th District	Joe Aresimowicz, State Representative Legislative Office Building, 4110 Hartford, CT 06106

MUNICIPAL OFFICIAL/AGENCY	NAME/ADDRESS
Southington State Representative 80th District	Rob Sampson, State Representative Legislative Office Building, 4200 Hartford, CT 06106
Southington State Representative 81st District	David Zoni, State Representative Legislative Office Building, Room 4000 Hartford, CT 06106
Southington State Representative 103rd District	Al Adinolfi, State Representative Legislative Office Building, 4200 Hartford, CT 06106
Bristol Chief Elected Official	Ken Cockayne City Council Bristol City Hall 111 N. Main Street Bristol, CT 06010
Bristol Inland Wetlands/Conservation	Zachary Fisk, Chairman Inland Wetlands & Watercourses Agency / Conservation Commission Bristol City Hall 111 N. Main Street Bristol, CT 06010
Bristol Planning Commission	William Veits, Chairman Planning Commission Bristol City Hall 111 N. Main Street Bristol, CT 06010
Bristol Zoning Commission	Brian Skinner, Chairman Zoning Commission Bristol City Hall 111 N. Main Street Bristol, CT 06010
Bristol Water Commissioners	Robert A. Badal, Chairman Board of Water Commissioners Water Treatment Plant 1080 Terryville Ave. Bristol, CT 06010

<i>MUNICIPAL OFFICIAL/AGENCY</i>	<i>NAME/ADDRESS</i>
Regional Planning Agency - Bristol	Naugatuck Valley Council of Governments 49 Leavenworth Street 3rd Floor Waterbury, CT 06702
Bristol State Senator 31st District	Henri Martin, State Senator Legislative Office Building, Room 3400 Hartford, CT 06106
Bristol State Representative 77th District	Cara Pavalock, State Representative Legislative Office Building, Room 4200 Hartford, CT 06106
Bristol State Representative 78th District	Whit Betts, State Representative Legislative Office Building, Room 4200 Hartford, CT 06106
Bristol State Representative 79th District	Frank N. Nicastro, Sr., State Representative Legislative Office Building, Room 4034 Hartford, CT 06106
Connecticut Attorney General	George Jepsen, Attorney General Office of the Attorney General 55 Elm Street Hartford, CT 06106
State Department of Energy and Environmental Protection	Rob Klee, Commissioner Department of Energy and Environmental Protection 79 Elm Street Hartford, CT 06106-5127
State Public Utilities Regulatory Authority	Arthur House, Chairman Public Utilities Regulatory Authority Department of Energy and Environmental Protection 10 Franklin Square New Britain, CT 06051
State Department of Public Health	Raul Pino, M.D., M.P.H., Commissioner Department of Public Health 410 Capitol Avenue P.O. Box 340308 Hartford, CT 06134

<i>MUNICIPAL OFFICIAL/AGENCY</i>	<i>NAME/ADDRESS</i>
State Council on Environmental Quality	Susan D. Merrow, Chair Council on Environmental Quality 79 Elm Street Hartford, CT 06106
State Department of Agriculture	Steven K. Reviczky, Commissioner Department of Agriculture 165 Capitol Avenue Hartford, CT 06106
Office of Policy & Management	Benjamin Barnes, Secretary Office of Policy and Management 450 Capitol Avenue Hartford, CT 06106
State Department of Economic & Community Development	Catherine Smith, Commissioner Department of Economic and Community Development 505 Hudson Street Hartford, CT 06106
State Department of Transportation	James P. Redeker, Commissioner Department of Transportation 2800 Berlin Turnpike Newington, CT 06111
Any Federal Agencies with Jurisdiction Over the Site	None

#### **ABUTTERS**

<i>GIS MAP/LOT</i>	<i>ABUTTER NAME &amp; MAILING ADDRESS</i>
178017 178/17	SUBJECT PARCEL B&R Corporation 216 Bogue Road Harwinton, CT 06791 Property: 49 DePaolo Drive
190003 190/3	B&R Corporation 216 Bogue Road Harwinton, CT 06791 Property: 2064 West Street

<i>GIS MAP/LOT</i>	<i>ABUTTER NAME &amp; MAILING ADDRESS</i>
190004 190/4	Sebastian A. & Lynda L. Milano 2030 West Street Southington, CT 06489-103 Property: West Street – rear
190005 190/5	Sebastian A. & Linda L. Milano 2030 West Street Southington, CT 06489-103 Property: same
190002 190/2	Thomas E. Guerrette 2050 West Street Southington, CT 06489-103 Property: same
191010 191/10	Leavitt Real Estate Holding, LLC 2070 West Street Southington, CT 06489 Property: same
190001 190/1	Dorothy M. Dexter L/U 1984 West Street Southington, CT 06489 Property: same
191001 191/1	Roger W. Tombari 1954 West Street Southington, CT 06489 Property: 1934 West Street
179010 179/10	Cheryl Urso 27 Bushy Hill Road Ivoryton, CT 06442 Property: 1916 West Street
178031 178/31	Albert Berstein c/o Eric P. Kaufman 11 Beech Street Farmington, CT 06032 Property: DePaolo Drive

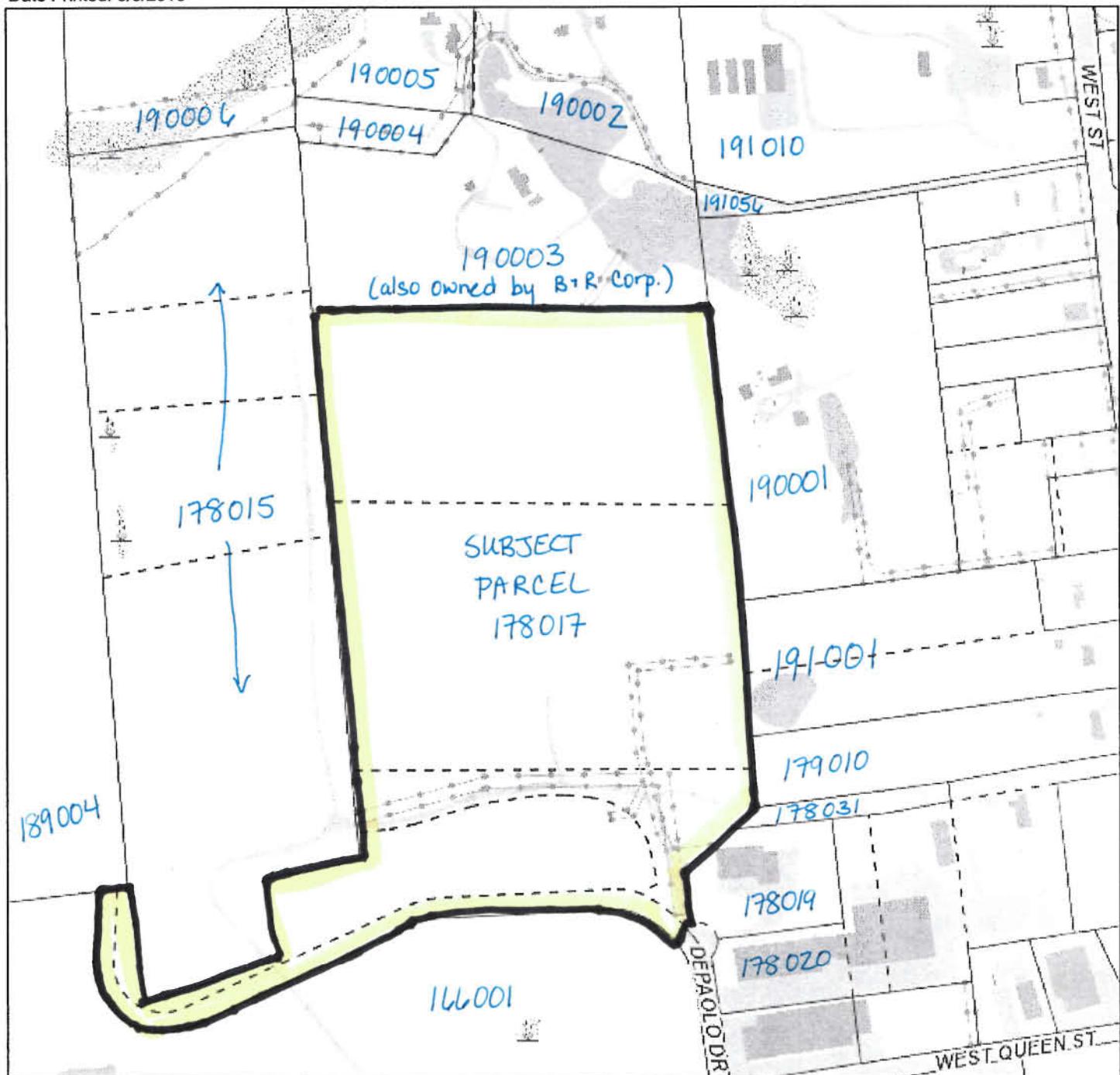
<i>GIS MAP/LOT</i>	<i>ABUTTER NAME &amp; MAILING ADDRESS</i>
178019 178/19	P B Realty, LLC 39 DePaolo Drive Southington, CT 06489-102 Property: same
178020 178/20	MW DePaolo Holdings, LLC 29 DePaolo Drive Southington, CT 06489 Property: same
166001 166/1	Tilcon, Inc. P.O. Box 311228 Newington, CT 06131 Property: Welch Road
189004 189/4	Festival Fun Parks, LLC 4590 MacArthur Blvd., Suite 400 Newport Beach, CA 92660 Property: Mt. Vernon Road
178015 178/15	Town of Southington Attn.: Town Manager 75 Main Street Southington, CT 06489-250 Property: DePaolo Drive – landfill
190006 190/6	Festival Fun Parks, LLC 4590 MacArthur Blvd., Suite 400 Newport Beach, CA 92660 Property: West Street

# Town of Southington

## Geographic Information System (GIS)



Date Printed: 3/3/2016



### MAP DISCLAIMER - NOTICE OF LIABILITY

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Approximate Scale: 1 inch = 400 feet

0 400  
Feet

