



State of Vermont
Department of Environmental Conservation

Agency of Natural Resources

Facilities Engineering Division
Laundry Building
103 South Main Street
Waterbury, VT 05671-0511

FAX (802) 244-4516

E-Mail Address: tom.joslin@state.vt.us
Direct Telephone (voice mail): (802) 241-3740

Barbara Sondag, Town Manager
Authorized Representative
Town of Brattleboro
Municipal Center, 230 Main Street
Brattleboro, Vermont 05301

June 18, 2009

Re: Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Vermont/ USEPA ARRA Clean Water Revolving Loan Number AR1-024 (RBC only)

Notice of Intent to Issue a Finding of No Significant Impact

Dear Ms Sondag:

The Department of Environmental Conservation intends to issue a Finding of No Significant Impact (FNSI) for the proposed major upgrade of the Brattleboro wastewater treatment plant plus three pump stations in the wastewater collection system. The treatment plant portion of the overall project is not eligible for Categorical Exclusion from detailed environmental review, but the direct and indirect environmental effects of the project are not significant enough to necessitate an Environmental Impact Statement (EIS).

The Department's environmental review procedures require a **30 day public comment period** following the issuance of a Notice of Intent to Issue a Finding of No Significant Impact. If no public comments received during that period demonstrate that this Notice of Intent is in error, then the Finding of No Significant Impact will become effective.

Copies of documents supporting a Finding of No Significant Impact are enclosed. Please keep copies of the **enclosed documents**, along with any pertinent reports by your consulting engineers, **available for public inspection** during a public comment period of 30 days. A full listing of the documents that must be available for public inspection is attached. Please call, (802) 241-3740, if you have any questions or concerns.

Sincerely,

Thomas G. Joslin, P.E.
Environmental Engineer
Design Section

TGJ/tgj

Enclosures



Barbara Sondag, Town Manager, Authorized Representative, Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Notice of Intent to Issue a Finding of No Significant Impact
June 18, 2009

Documents Enclosed for Finding of No Significant Impact Public Comment Period (30 days)

1. **Notice of Intent to Issue a Finding of No Significant Impact**
(Signed by Larry R. Fitch, P.E., Director, Facilities Engineering Division.)
2. **Evaluation of Eligibility for Finding of No Significant Impact**
(Approved by Larry R. Fitch, P.E., Director, Facilities Engineering Division.)
3. **Environmental Review Procedures for Projects Funded Through the Vermont/ EPA Revolving Loan Program**
4. **Environmental information document titled "Brattleboro Wastewater Treatment Facility Upgrade, Environmental Information Document", and dated May 2009, by Hoyle, Tanner & Associates, Inc, of Burlington, Vermont.**

Additional Documents Needed for Finding of No Significant Impact Public Comment Period (30 days)

5. **Facilities plan titled "Brattleboro Wastewater Treatment Facility Upgrade, Conceptual Design Report", and dated March 2009, by Hoyle, Tanner & Associates, Inc.**
6. **Preliminary engineering report titled "Wastewater Treatment Facility Upgrade, Preliminary Engineering Report", and dated August 22, 2007, by DuBois & King, Inc, of Randolph, Vermont.**
7. **Facilities evaluation report titled "Brattleboro Wastewater Treatment Facility, 20-Year Evaluation and Interim Report", dated 2005, by DuBois & King, Inc.**

Barbara Sondag, Town Manager, Authorized Representative, Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Notice of Intent to Issue a Finding of No Significant Impact
June 18, 2009

COPY LIST

Stephen Barrett, Director of Public Works, Town of Brattleboro

Dan Mason, Environmental Analyst, Stormwater Section (Construction Sites), VT-DEC, Water Quality Division, **Barre** Regional Office

Everett Marshall, Information Manager, Nongame and Natural Heritage Program, VT Dept of Fish & Wildlife

Kenneth Cox, Fisheries Biologist, VT Dept of Fish & Wildlife, **Springfield** Regional Office

Mic Metz, District Wetlands Ecologist, Wetlands Section, VT-DEC, Water Quality Division, **Rutland** Regional Office

Chuck Schwer, Chief, Site Management Section, VT-DEC, Waste Management Division

Scott Dillon, Archeologist, Division for Historic Preservation, VT Dept of Housing and Community Affairs



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Department of Environmental Conservation

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Notice of Intent to Issue a Finding of No Significant Impact

**Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades**

Vermont/ USEPA ARRA Clean Water Revolving Loan Number: **AR1-024** (RBC only)

The Department of Environmental Conservation intends to issue a Finding of No Significant Impact (FNSI) for the proposed major upgrade of the Brattleboro wastewater treatment plant plus three pump stations in the wastewater collection system.

Under the Department's Environmental Review Procedures for Projects Funded Through the Vermont/ EPA Revolving Loan Program, the treatment plant upgrade is ineligible for Categorical Exclusion from detailed environmental review. The project will increase the equivalent population treatment capacity, in terms of influent organic loading, by at least 30 percent, above the maximum for Categorical Exclusion.

Also, the direct and indirect environmental effects of the project are not significant enough to necessitate an Environmental Impact Statement (EIS), under the Department's environmental review procedures. The project will not increase the current permitted flow capacity of the treatment plant, and the project will not include sewer extensions.



**Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Notice of Intent to Issue a Finding of No Significant Impact
June 16, 2009**

Further information on the project and this Notice of Intent is available for inspection at the following locations:

Barbara Sondag, Town Manager
Town of Brattleboro
Municipal Center, 230 Main Street
Brattleboro, Vermont 05301

Telephone: (802) 251-8102

Vermont Department of Environmental Conservation
Facilities Engineering Division
Laundry Building, 103 South Main Street
Waterbury, VT 05671-0511

Telephone: (802) 241-3740

Hoyle, Tanner & Associates, Inc
125 College Street, 4th Floor
Burlington, VT 05401

Telephone: (802) 860-1331

No significant administrative action will be taken on this project for thirty (30) days from issuance of this Notice of Intent, to allow for public comment.



Larry R. Fitch, P.E., Director
Facilities Engineering Division

June 18, 2009
Date

Department of Environmental Conservation
Vermont Agency of Natural Resources



State of Vermont
Department of Environmental Conservation

Agency of Natural Resources

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FAX (802) 244-4516

E-Mail: tom.joslin@state.vt.us
Direct Telephone (voice mail): (802) 241-3740

TO: Larry Fitch, Director, Facilities Engineering Division *Concur. L. Joslin*

FROM: *TJ* Tom Joslin, Environmental Engineer, Design Section, Facilities Engineering Division

SUBJECT: **Town of Brattleboro**
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Evaluation of Eligibility for Finding of No Significant Impact

DATE: June 16, 2009

A. Project Identification

Project Name: Town of Brattleboro
Wastewater Treatment Plant Upgrade and
Pump Station Upgrades

Address: Barbara Sondag, Town Manager
Town of Brattleboro
Municipal Center, 230 Main Street
Brattleboro, Vermont 05301

Project Location: Brattleboro, Vermont
Wastewater treatment plant, Riverside Drive
Black Mountain ejector station, Black Mountain Road
West River pump station, Spring Tree Road
Irving ejector station, Riverside Drive

Vermont/ USEPA ARRA Clean Water Revolving Loan Number: **AR1-024** (RBC only)



Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Evaluation of Eligibility for Finding of No Significant Impact
June 16, 2009

B. Summary of Environmental Review

The Department of Environmental Conservation, Facilities Engineering Division, has reviewed this proposed project in accordance with the Department's Environmental Review Procedures for Projects Funded Through the Vermont/ EPA Revolving Loan Program.

The Department has reviewed the following planning documents:

- **Environmental information document** titled "*Brattleboro Wastewater Treatment Facility Upgrade, Environmental Information Document*", and dated **May 2009**, by **Hoyle, Tanner & Associates, Inc.**, of Burlington, Vermont.
- **Facilities plan** titled "*Brattleboro Wastewater Treatment Facility Upgrade, Conceptual Design Report*", and dated **March 2009**, by **Hoyle, Tanner & Associates, Inc.**
- **Preliminary engineering report** titled "*Wastewater Treatment Facility Upgrade, Preliminary Engineering Report*", and dated **August 22, 2007**, by **DuBois & King, Inc.**, of Randolph, Vermont.
- **Facilities evaluation report** titled "*Brattleboro Wastewater Treatment Facility, 20-Year Evaluation and Interim Report*", dated **2005**, by **DuBois & King, Inc.**

A **Finding of No Significant Impact (FNSI)** is the appropriate environmental review response for this project. With the exception of the proposed pump station upgrades, this project is **not** eligible for **Categorical Exclusion** from detailed environmental review. Also, the project's direct and indirect environmental effects do **not** meet the criteria for issuance of an **Environmental Impact Statement (EIS)**, as described in section XI of the Department's environmental review procedures.

Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Evaluation of Eligibility for Finding of No Significant Impact
June 16, 2009

1. Project Description

The Town of Brattleboro is located in **Windham** County, Vermont. The proposed project consists of three contracts:

- a. At the wastewater treatment plant, replacement of the existing **RBC** (rotating biological contactor) media with higher density media, and reconfiguration of the RBC treatment trains, for more effective wastewater treatment and increased organic treatment capacity. This contract is expected to be constructed in **2009** with **ARRA** (American Recovery and Reinvestment Act of 2009) funding.
- b. Major upgrade and refurbishment of **three existing pump or ejector stations** : Black Mountain ejector station, West River pump station and Irving ejector station. This contract is expected to be constructed with **non-ARRA clean water revolving loan** funding.

If the pump station contract were a free-standing project, it would be eligible for Categorical Exclusion, but Categorical Exclusion would necessitate another environmental review process. In order to expedite facilities plan approval for the overall project, this contract will be included within the Finding of No Significant Impact, unless the Town specifically requests Categorical Exclusion for this contract.

- c. Major upgrade and refurbishment of the **remainder of the wastewater treatment plant**, excluding the RBC media replacement and RBC train reconfiguration to be completed under the first contract. This contract will include a new headworks building; septage and outside wastes receiving station; new influent lift station, two new circular primary clarifiers; conversion of the existing primary effluent lift station to a biological selector for nutrient removal; refurbishment of the two existing secondary clarifiers and the chlorine contact tank; upgrade of the existing anaerobic sludge digesters to a two-stage digestion process; two new rotary press sludge dewatering units; multiple energy recovery projects including digester gas cogeneration; and associated building and site improvements. This contract is expected to be constructed with **non-ARRA clean water revolving loan** funding.

**Town of Brattleboro, Vermont
Wastewater Treatment Plant Upgrade and Pump Station Upgrades
Evaluation of Eligibility for Finding of No Significant Impact
June 16, 2009**

2. Justification for Finding of No Significant Impact

We have determined that the proposed project meets the criteria for issuance of a Finding of No Significant Impact.

The RBC contract and the overall treatment plant contract are ineligible for Categorical Exclusion. The proposed treatment plant upgrade will increase the influent biochemical oxygen demand (BOD) organic treatment capacity of the plant by 46.3 percent, according to the Environmental Information Document. Under the Department's environmental review procedures, a Categorical Exclusion may not be issued for a wastewater treatment plant project that increases equivalent population treatment capacity by at least 30 percent. The Department has adopted influent 5-day BOD as an indicator of equivalent population including industrial process wastewater in addition to actual connected population. For economic development and energy recovery, Brattleboro wishes to increase its capacity to treat wastewater from food and beverage industries, as well as trucked concentrated incoming wastes such as septage and FOG (fats, oils and grease).

In addition, the direct and indirect environmental effects of the project will not necessitate an Environmental Impact Statement (EIS). The project will not increase the current 3 mgd (million gallons per day) permitted flow capacity of the treatment plant. The project is not expected to stimulate major residential development. Since the year 2000, the estimated population of Windham County and much of southern Vermont has declined slightly. The project will not include sewer extensions. The environmental footprint of food or beverage industries that might be accommodated by the municipal wastewater project is expected to be limited. A major bond article for the project has been approved by elected Town representatives, and the project is not expected to be controversial.

Construction of the project is not expected to directly affect wetlands, wetlands buffer zones, floodplains; habitats of rare, threatened or endangered species; or other environmentally sensitive areas. The University of Vermont Consulting Archaeology Program will review potential project effects on historic and prehistoric sites.

Vermont Department of Environmental Conservation
Facilities Engineering Division

Environmental Review Procedures for
Projects Funded Through the
Vermont/EPA Revolving Loan Program

I. Purpose and Policy

- a. Section 602(b)(6) of Title VI of the Federal Clean Water Act requires that states have an environmental review process for Title VI projects. This process can be the same as that applied to Title II projects under the National Environmental Policy Act (NEPA) or can be modified if the intent of NEPA is met. The State of Vermont, Department of Environmental Conservation (VT DEC) provides state grant funds to projects under Title II and Title VI and applies the NEPA process to Title II projects. It is our intent to apply substantially the same process to Title VI projects. A statement of the process follows.

II. Definitions

- a. Terminology. All terminology used in this part will be consistent with the terms as defined in 40 CFR Part 1508 (the CEQ Regulations). Any qualifications will be provided in the definitions set forth in each subpart of the procedure.
- b. The term "environmental review" means the process whereby an evaluation is undertaken by the VT DEC to determine whether a proposed project may have a significant impact on the environment and therefore require the preparation of an EIS.
- c. The term "environmental information document" means any written analysis prepared by an applicant or contractor describing the environmental impacts of a proposed project. This document will be of sufficient scope to enable the responsible official to assess the environmental impacts of the proposed project.
- d. The term "loan" means a loan of funds by a written loan agreement from the VT/EPA Revolving Loan Fund (SRF).
- e. "Applicant" means any local authority which has filed an application for loan assistance from the SRF.
- f. "Responsible official" means the Director, VT Public Facilities Division, or a designated representative thereof, who is authorized to fulfill the requirements of these procedures.
- g. The term "record of decision" (ROD) means a document prepared and issued by the VT DEC responsible official on the environmental impact statement which includes an identification of mitigation measures.
- h. The term "planning/design loan" means a loan which is issued for the purpose of preparation of a plan (including environmental review process) and/or preparation of design drawings

and specifications for a potential construction project.

- i. The term "project" means a construction project which receives a loan for the purpose of building a publicly owned treatment works.

III. Applicability

These procedures apply to all construction projects funded wholly or partly from funds within the VT/EPA Revolving Loan Fund which are derived from the federal capitalization grant, except as provided in Section IV. These procedures may be carried out during the planning/design project which received a loan from the revolving fund.

IV. Overview of the Environmental Review Process

The process for conducting an environmental review of wastewater facility construction projects includes the following steps:

- a. Consultation. The applicant is encouraged to consult with VT DEC early in project formulation or the facilities planning stage to determine whether a project is eligible for a categorical exclusion from the remaining substantive environmental review requirements of these procedures, to determine alternatives to the proposed project for evaluation, to identify potential environmental issues and opportunities for public recreation and open space, and to determine the potential need for partitioning the environmental review process and/or the need for an Environmental Impact Statement (EIS).
- b. Determining categorical exclusion eligibility. At the request of an applicant, VT DEC will determine if a project is eligible for a categorical exclusion as described in Section VII of these procedures.
- c. Documenting environmental information. If the project is determined to be ineligible for a categorical exclusion, or if no request for a categorical exclusion is made, the potential applicant subsequently prepares an Environmental Information Document (EID) for the project.

In the event that the proposed action is of a limited nature, but does not qualify for a categorical exclusion, and that an EID has been approved previously by the US EPA or VT DEC for wastewater facilities, the responsible official may determine to what extent updated information may suffice to provide the requisite environmental review of the project.

- d. Assessing environmental impacts. The VT DEC reviews the environmental information document and based upon an assessment of the environmental impacts of the proposed project, the VT DEC:
 1. Prepares and issues a Finding of No Significant Impact (FNSI); or
 2. Prepares and issues a Notice of Intent to prepare an original or supplement EIS and Record of Decision (ROD).
- e. Monitoring. The construction and post-construction operation and maintenance of the facilities are monitored to ensure implementation of mitigation measures identified in the FNSI or ROD.

V. Consulting During the Facilities Planning Process

The responsible official shall initiate the environmental review process early to identify environmental effects, avoid delays, and resolve conflicts. The environmental review process should be integrated throughout the facilities planning process. Potential applicants should consult with VT DEC early in the facilities planning process to determine the appropriateness of a categorical exclusion, the scope of an Environmental Assessment, or the appropriateness of the early preparation of an Environmental Impact Statement (EIS). The consultation would be most useful during the evaluation of project alternatives prior to the selection of a preferred alternative to assist in resolving any identified environmental problems.

VI. Coordination With Other Environmental Review and Consultation Requirements

Various state and federal laws and executive orders address specific environmental concerns and review procedures. The responsible official shall integrate to the greatest practicable extent those concerns and applicable procedures during implementation of the environmental review process to ensure an interdisciplinary approach to assessing impacts including adherence to other state and federal environmental objectives. Coordination shall be implemented early with the State Clearinghouse Review Process.

Referenced below are pertinent laws, regulations, or executive orders which should be included in this coordinated effort:

a. Landmarks, historical, and archaeological sites

1. Historic Sites Act;
2. National Historic Preservation Act;
3. Archaeological and Historic Preservation Act;
4. Executive Order 11593, "Protection and Enhancement of the Cultural Environment;"
5. Executive Order 12372, "Intergovernmental Review of Federal Programs;"

b. Wetlands, floodplains, important farmlands, coastal zones, wild and scenic rivers, fish and wildlife, and endangered species.

1. Executive Order 11990, "Protection of Wetlands;"
2. Executive Order 11988, "Floodplain Management;"
3. Farmland Protection Policy Act;
4. EPA Policy to Protect Environmentally Significant Agricultural Lands, September 8, 1978;
5. Coastal Zone Management Act;
6. Wild and Scenic Rivers Act;

7. Fish and Wildlife Coordination Act; and

8. Endangered Species Act.

c. Air Quality-Clean Air Act, as amended in 1977.

VII. Categorical Exclusions

a. At the request of an applicant, the responsible official shall determine from existing information and documents whether an action is consistent with the categories eligible for exclusion from review identified in VII (b) and not inconsistent with the criteria in VII (c).

b. Categories of actions eligible for exclusion. For these procedures actions consistent with any of the following categories are eligible for a categorical exclusion:

1. Actions for which the facilities planning is solely directed toward minor rehabilitation of existing facilities, functional replacement of equipment, or toward the construction of new ancillary facilities adjacent or appurtenant to existing facilities which do not affect the degree of treatment or capacity of the existing facility by more than 20%. Such actions include, but are not limited to, infiltration and inflow corrections, replacement of existing facility, equipment or structures, and the construction of additional treatment structures on existing sites.

2. Actions in communities of less than 10,000 persons which are for minor upgrading and minor expansion of existing treatment works or collection lines, or for on-site disposal systems.

3. Other actions developed in accordance with paragraph (d) of this section.

c. Criteria for not granting a categorical exclusion.

1. The full environmental review procedures must be followed if undertaking an action consistent with the categories described in paragraph (b) may involve serious local or environmental issues, or meets any of the criteria listed below:

a. The facilities to be provided will create a new discharge to surface or groundwater;

b. The facilities will result in substantial increases in the volume of discharge or the loading of pollutants from an existing source or from new facilities to receiving waters;

c. The facilities would provide capacity to serve an equivalent population 30% greater than the existing equivalent population;

d. The action is known or expected to have a significant negative effect on the quality of the human environment, either individually, cumulatively over time, or in conjunction with other federal, state, local, or private actions;

- e. The action is known or expected to directly or indirectly affect: (1) cultural resource areas such as archaeological and historic sites, (2) habitats of endangered or threatened species, (3) environmentally important natural resource areas such as floodplains, wetlands, important farmlands, aquifer recharge zones, or (4) other resource areas identified in supplemental guidance issued by the VT DEC; or
 - f. The action is known or expected not to be cost-effective or to cause significant public controversy.
2. Notwithstanding the provisions of paragraph (b), if any of the above conditions exist, the responsible official shall ensure:
- a. That a categorical exclusion is not granted or, if previously granted, that it is revoked according to paragraph e2(c) of this part;
 - b. That either a FNSI or an EIS and ROD are prepared and issued.
- d. Developing new categories of excluded actions. The responsible official or other interested parties may request that a new category of excluded actions be created, or that an existing category be amended or deleted. The request shall be made in writing to the Director, and shall contain adequate information to support the request. Proposed new categories shall be developed by VT DEC. The following shall be considered in evaluating proposals for new categories:
- 1. Actions in the proposed category should seldom result in the effects identified in Paragraph VIII.(c)(1);
 - 2. Based upon previous environmental reviews, actions consistent with the proposed category have not required the preparation of an EIS; and
 - 3. Whether information adequate to determine if a potential action is consistent with the proposed category will normally be available when needed.
- e. Proceeding with loan agreements.
- 1. After a categorical exclusion on a proposed treatment works has been granted, and notices published, loan agreements may proceed without being subject to any further environmental review requirements, unless the responsible official determines that the project, or the conditions at the time of the categorical determination was made, have changed significantly since the independent VT DEC review of information submitted by the applicant in support of the exclusion.
 - 2. For categorical exclusion determinations five or more years old, the responsible official shall re-evaluate the project, environmental conditions and public views, and prior to a loan agreement, either:
 - a. Reaffirm--issue a public notice reaffirming the original environmental determination to proceed with the project without need for any further environmental review;
 - b. Supplement--update the information in the decision document on the

categorically excluded project and prepare, issue, and distribute a revised notice; or

- c. Reassess--revoke the categorical exclusion and require a complete environmental review to determine the need for an EIS, followed by preparation, issuance, and distribution of a FNSI, or EIS and ROD.

VIII. Environmental Review Process

- a. Review of completed facilities plans. VT DEC shall review the completed facilities plan with particular attention to the Environmental Information Document (EID) and its utilization in the development of alternatives and the selection of a preferred alternative. An adequate Environmental Information Document shall be an integral part of any facilities plan submitted to Vermont DEC. The EID shall be of sufficient scope to enable the responsible official to make determinations on requests for partitioning the environmental review process and for preparing a FNSI.
- b. Environmental assessment. The environmental assessment process shall cover all potentially significant environmental impacts. VT DEC personnel shall assess environmental impacts before the facilities plan approval if needed for compliance with environmental review requirements. Each of the following subjects, and requirements, shall be included in the EID so that Vermont DEC personnel may objectively identify potentially significant environmental concerns and the potential impacts.
 1. Description of the existing environment. For the delineated facilities planning area, the existing environmental conditions relevant to the analysis of alternatives, or to determining the environmental impacts of the proposed action, shall be considered.
 2. Description of the future environment without the project. The relevant future environmental conditions shall be described. The no action alternative should be discussed.
 3. Purpose and need. This should include a summary discussion and demonstration of the need, or absence of need, for wastewater facilities in planning area, with particular emphasis on existing public health or water quality problems and their severity and extent.
 4. Documentation. Sources of information used to describe the existing environment and to assess future environmental impacts should be clearly referenced. These sources should include regional, state, and federal agencies with responsibility or interest in the environmental concerns.
 5. Analysis of alternatives. This discussion shall include a comparative analysis of feasible alternatives, including the no action alternative, throughout the study area. The alternatives shall be screened with respect to capital and operating costs; direct, indirect, and cumulative environmental effects; physical, legal, or institutional constraints; and compliance with regulatory requirements. Special attention should be given to: The environmental consequences of long-term, irreversible, and induced impacts; and that applicants have satisfactorily demonstrated analysis of potential recreation and open-space opportunities in the planning of the proposed treatment works. The reasons for rejecting any alternatives shall be presented in addition to any

significant environmental benefits precluded by rejection of an alternative. The analysis should consider when relevant to the project:

- a. Flow and waste reduction measures, including infiltration/flow reduction and pretreatment requirements.
 - b. Appropriate water conservation measures;
 - c. Alternative locations, capacities, and construction phasing of facilities;
 - d. Alternative waste management techniques, including pretreatment, treatment and discharge, wastewater reuse, land application, and individual systems;
 - e. Alternative methods for management of sludge, other residual materials, including utilization options such as land application, composting, and conversion of sludge for marketing as a soil conditioner or fertilizer.
 - f. Improving effluent quality through more efficient operation and maintenance;
 - g. Appropriate energy reduction measures; and
 - h. Multiple use including recreation, other open space, and environmental education.
6. Evaluating environmental consequences of proposed action. A full range of relevant impacts of the proposed action shall be discussed, including measures to mitigate adverse impacts, any irreversible or irretrievable commitments of resources to the project and the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. Any specific requirements, including loan conditions and area wide waste treatment management plan requirements, should be identified and referenced. In addition to these items, the responsible official may require environmental review requirements be included with the facilities plan. Such requirements should be discussed whenever meetings are held with applicants.
7. Minimizing adverse effects of the proposed action.
- a. Structural and nonstructural measures, directly or indirectly related to the facilities plan, to mitigate or eliminate adverse effects on the human and natural environments, shall be identified during the environmental review. Among other measures, structural provisions include changes in facility design, size, and location; nonstructural provisions include staging facilities, monitoring and enforcement of environmental regulations, and local commitments to develop and enforce land use regulations.
 - b. The Vermont DEC shall not accept a facilities plan, nor approve loan assistance for its implementation, if the applicant has not made, or agreed to make, changes in the project, in accordance with determinations made in a FNSI or the ROD for a EIS. The Vermont DEC shall condition a loan or seek other ways to ensure that the applicant will comply with such environmental

review determinations.

c. FNSI/EIS determination. The responsible official shall apply the criteria under Section XI to the following:

1. A complete facilities plan;
2. The EA; and
3. Other documentation deemed necessary by the responsible official adequate to make an EIS determination by Vermont DEC. Following an independent environmental review of the project, the responsible official shall document

in writing the reasons for his determination to issue a FNSI or to prepare an EIS. The responsible official's determination to issue a FNSI or to prepare an EIS shall constitute final Vermont DEC action.

IX. Partitioning the Environmental Review Process

a. Purpose. Under certain circumstances, the building of a component/portion of a wastewater treatment system may be justified in advance of completing all environmental review requirements for the remainder of the system(s). When there are overriding considerations of cost or impaired program effectiveness, the responsible official may approve a loan for a discrete component of a complete wastewater treatment system(s). The process of partitioning the environmental review for the discrete component shall comply with the criteria and procedures described in paragraph (b) of this section. In addition, all reasonable alternatives for the overall wastewater treatment works system(s) of which the component is a part shall have been previously identified and each part of the environmental review for the remainder of the overall facilities plan shall comply with all requirements under Section VIII.

b. Criteria for partitioning. The project component must:

1. Immediately remedy a severe public health, water quality, or other environmental problem;
2. Not foreclose any reasonable alternatives identified for the overall wastewater treatment works system(s);
3. Not cause significant adverse direct or indirect environmental impacts including those which cannot be acceptably mitigated without completing the entire wastewater treatment system of which the component is a part; and
4. Not be highly controversial.

c. Request for partitioning. The applicant's request for partitioning must contain the following:

1. A description of the discrete component proposed for construction before completing the environmental review of the entire facilities plan;

2. How the component meets the above criteria;
 3. The environmental information required by Section VIII for the component; and
 4. Any preliminary information that may be important to Vermont DEC in an EA determination for the entire facilities plan.
- d. Approval of requests for partitioning. The responsible official shall:
1. Review the request for partitioning against all requirement of this procedure;
 2. If approvable, prepare and issue a FNSI;
 3. Include a loan condition prohibiting the building of additional or different components of the entire facilities plan for which the environmental review is not complete.

X. Finding of no Significant Impact (FNSI) Determination

- a. Criteria for producing and distributing a FNSI. If, after completion of the environmental review, Vermont DEC determines that an EIS will not be required, the responsible official shall issue a FNSI. The FNSI will be based on Vermont DEC independent review of the EID and any other environmental information deemed necessary by the responsible official consistent with the requirements of Section VIII. The FNSI shall list mitigation measures necessary to make the recommended alternative environmentally acceptable.
- b. Proceeding with loan agreement.
1. Once the issued FNSI becomes effective for the facilities plan for the study area, a loan agreement may proceed without preparation of an additional FNSI, unless the responsible official determines that the project or environmental conditions have changed significantly from that which underwent environmental review.
 2. For an Environmental Assessment/FNSI five or more years old, the responsible official shall re-evaluate the project, environmental conditions, and public views, and, prior to approval of loan agreement, either:
 - a. Reaffirm--issue a public notice reaffirming the original environmental determination to proceed with the project without revising the Environmental Assessment;
 - b. Supplement--require an update of the Environmental Assessment, issue and distribute a revised FNSI; or
 - c. Reassess--withdraw the FNSI and publish a notice of intent to produce an Environmental Assessment, followed by the preparation, issuance, and distribution of the Environmental Assessment and ROD.

c. Revisions to the Project.

1. Statement of Findings. If the project scope of work is revised after FNSI has been issued, but the revision is determined by the VT DEC to be a minor revision, the VT DEC shall issue a Statement of Findings (SOF) documenting the reason for the revision and its impact, if any, on the environment. The SOF shall be distributed to parties who previously indicated interest in the project environmental review process.
2. Amendment. If the project scope of work is revised after a FNSI has been issued, but the revision is determined by the DEC to be significant, the DEC shall issue an amendment to the FNSI with proper public notification as identified in Section XV and shall provide for a public meeting to discuss the amendment.

XI. Criteria for Initiating Environmental Impact Statements (EIS)

- a. Conditions requiring an EIS. The responsible official shall assure that an EIS will be prepared and issued when it is determined that the treatment works or collector system will cause any of the conditions to exist, or when:
 - b. The project may significantly affect the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population;
 - c. The effects resulting from any structure or facility constructed or operated may conflict with local, regional, or state land use plans or policies;
 - d. The project may have significant adverse effects on wetlands, including indirect and cumulative effects, or any major part of the project may be located in significant wetlands;
 - e. The project may significantly affect a habitat identified on the Department of the Interior' or the state's threatened and endangered species lists, or may be located in the habitat;
 - f. Implementation of the project may directly cause or induce charges that significantly:
 1. Displace population;
 2. Alter the character of existing residential areas;
 3. Adversely affect a floodplain; or
 4. Adversely affect significant amounts of important farmlands or agricultural operations on this land.
 - g. The project may directly, indirectly, or cumulative have significant adverse effects on parklands, preserves, other public land, or areas of recognized scenic, recreational,

archaeological, or historic value;

- h. The project may directly, or through induced development, have a significant adverse effect upon local ambient air quality, local ambient noise levels, surface water or groundwater quality or quantity, water supply, fish, shellfish, wildlife, and their natural habitats;
- i. The treated effluent is being discharged into a body of water where the present classification is too lenient or is being challenged as too low to protect present or recent uses, and the effluent will not be of sufficient quality or quantity to meet the requirements of these uses; or
- j. Other conditions. The responsible official shall also consider preparing an EIS if: the project is highly controversial; the project, in conjunction with related federal, state, or local resource projects, produces significant cumulative impacts; or if it is determined that the treatment works may violate federal, state, or local laws or requirements imposed for the protection of the environment.

XII. Environmental Impact Statement (EIS) Preparation

- a. Steps in preparing the EIS. In addition to the other requirements specified in this procedure, the responsible official will conduct the following activities:
 - 1. Notice of intent. If a determination is made that an EIS will be required, the responsible official shall prepare and distribute a notice of intent.
 - 2. Scoping. As soon as possible, after the publication of the notice of intent, the responsible official will convene a meeting of affected federal, state, and local agencies, the applicant and other interested parties to determine the scope of the EIS. As part of the scoping meeting, VT DEC will, as a minimum:
 - a. Determine the significance of issues for and the scope of those significant issues to be analyzed in depth in the EIS;
 - b. Identify potential cooperating agencies and determine the information or analyses that may be needed from cooperating agencies or other parties;
 - c. Discuss the method for EIS preparation and the public participation strategy;
 - d. Identify consultation requirements of other environmental laws; and
 - e. Determine the relationship between the EIS and the completion of the facilities plan and any necessary coordination arrangements between the preparers of both documents.
 - 3. Identifying and evaluating alternatives. Immediately following the scoping process, the responsible official shall commence the identification and evaluation of all potentially viable alternatives to adequately address the range of issues identified in the scoping process. Additional issues may be

addressed, or others eliminated, during this process and the reasons documented as part of the EIS.

- b. Method for preparing EIS. After Vermont DEC determines the need for an EIS, it shall select one of the following methods for its preparation:
 1. By Vermont DEC contracting directly with a qualified consulting firm;
 2. By utilizing a third party method whereby the responsible official enters into "third party agreements:" for the applicant to engage and pay for the services of a third party to prepare the EIS. Such agreement shall not be initiated unless both the applicant and the responsible official agree to its creation. A third party agreement will be established prior to the applicant's EID and eliminate the need for the comment. In proceeding under the third party agreement, the responsible official shall carry out the following practices:
 - a. In consultation with the applicant, choose the third party contractor and manage that contract;
 - b. Select the consultant based on ability and absence of conflict of interest. Third party contractors will be required to execute a disclosure statement prepared by the responsible official signifying they have no financial or other conflicting interest in the outcome of the project; and
 - c. Specify the information to be developed and supervise the gathering, analysis, and presentation of the information. The responsible official shall have sole authority for approval and modification of the statements, analyses, and conclusion included in the third party EIS.

XIII. Record of Decision (ROD) for the EIS and Identification of Mitigation Measures

- a. Record of Decision. After a final EIS has been issued, the responsible official shall prepare an issue a ROD prior to, or in conjunction with, the approval of the facilities plan. The ROD shall include identification of mitigation measures derived from the EIS process including loan conditions which are necessary to minimize the adverse impacts of the selected alternative.
- b. Specific mitigation measures. Prior to the approval of a facilities plan, the responsible official must ensure that effective mitigation measures identified in the ROD will be implemented by the applicant. This should be done by revising the facilities plan, initiating other steps to mitigate adverse effects, or including conditions in loans requiring actions to minimize effects. Care should be exercised if a condition is to be imposed in a loan document to assure that the applicant possesses the authority to fulfill the conditions.
- c. Proceeding with loan agreements.
 1. Once the ROD has been prepared on the selected or preferred alternative(s) for the facilities plan described within the EIS, loan agreements may proceed without preparation of a supplemental EIS unless the responsible official determines that the project or the environmental conditions described within

the current EIS have changed significantly from the previous environmental review.

2. For EISs five or more years old, the responsible official shall re-evaluate the project, environmental conditions, and public views, and compare them to the information contained within the EIS and, prior to loan agreement, make a determination to either:
 - a. Reaffirm--prepared, issue, and distribute a FNSI affirming the original environmental determination to proceed with the project, and documenting that no additional significant impacts were identified during the re-evaluation which would require supplementing the EIS; or
 - b. Supplement--conduct additional studies and prepare, issue, and distribute a supplemental EIS and document the original or any revised decision in an addendum to the ROD.

XIV. Monitoring for Compliance

- a. General. The responsible official shall ensure adequate monitoring of mitigation measures and other loan conditions identified in the FNSI or ROD.
- b. Enforcement. If the applicant fails to comply with loan conditions, the responsible official may consider applying the following sections:
 1. withhold payment
 2. suspend or terminate the loan agreement for cause
 3. suspend the applicant as an eligible applicant
 4. take other appropriate administrative action or
 5. institute judicial proceedings

XV. Public, Federal Agency, and Other State Agency Involvement

- a. The VT DEC shall make diligent efforts to involve the public in the environmental review process consistent with program statutes, regulations and State Clearinghouse for Intergovernmental Review policies on public participation. The responsible official shall ensure that public notice is provided and shall ensure that public involvement is carried out following state policies and guidelines on public participation.

General. Consistent with state public participation regulations, it is VT DEC policy that certain public participation steps be achieved before the VT DEC completes the environmental review process. As a minimum, for projects not qualifying for a categorical exclusion, potential applicants shall conduct:

1. One public meeting when alternatives have been developed, but before an alternative has been selected, to discuss all alternatives under consideration and the reasons for rejection of others; and
2. One public hearing prior to formal adoption of a facilities plan to discuss the

proposed facilities plan and any needed mitigation measures. In the event that a full-scale facilities plan is not prepared, or an existing facilities plan is amended because the proposed action is determined to be of a limited nature, the responsible official may approve the substitution of a public meeting with appropriate public notice instead of a public hearing for this requirement.

- b. Publication of notices of intent. As soon as practicable after a decision is rendered to issue a categorical exclusion or FNSI, or to prepare an EIS (but before initiating the process), the responsible official shall send the notice of intent to interested and affected members of the public, and shall publish the notice of intent in a newspaper of general circulation in the community of the project.

The responsible official shall not take administrative action on the project for at least thirty (30) calendar days after release of the notice of determination on the categorical exclusion or release of the FNSI to allow time for public response.

- c. Record of Decision. The responsible official shall disseminate the record of decision to those parties which commented on the draft of final EIS. One copy shall be submitted to EPA.
- d. EIS. The responsible official shall follow, as applicable, procedures identified at 40 CFR, Part 6, Subpart B, for official filing requirements, availability of documents, commenting process, and supplements to the EIS.
- e. Scope. The responsible official may institute additional NEPA-related public participation procedures as are deemed necessary during the environmental review process.

XVI. The Environmental Impact Statement Format

Preparers of EIS must use plain language and may use appropriate graphics so that decision makers and the public can readily understand them. Statements shall be based upon the analyses and supporting data from the natural and social sciences and the environmental design. The format used for the EIS shall encourage good analysis and clear presentation of alternatives, including the proposed action, and their environmental, economic, and social impacts. The following standard format for EISs should be used unless the responsible official determines that there is a compelling reason to do otherwise:

- a. Cover Sheet;
- b. Executive Summary;
- c. Table of Contents;
- d. Purpose of and need for action;
- e. Alternatives including proposed action;
- f. Affected environment;

- g. Environmental consequences of the alternative;
- h. Coordination (includes list of agencies, organizations, and persons to whom copies of the EIS are sent);
- i. List of preparers;
- j. Index (commensurate with complexity of EIS);
- k. Appendices.

XVII. Executive Summary

The executive summary shall describe in sufficient detail (10-15 pages) the critical facets of the EIS so that the reader can become familiar with the proposed project or action and its net effects. The executive summary shall focus on:

- a. The existing problem;
- b. A brief description of each alternative evaluated (including the preferred and no action alternatives) along with a listing of the environmental impacts, possible mitigation measures relating to each alternative, and any areas of controversy (including issues raised by governmental agencies and the public); and
- c. Any major conclusions.

A comprehensive summary may be prepared in instances where the EIS is unusually long in nature. The comprehensive summary may be circulated in lieu of the EIS; however, both documents shall be distributed to any federal, state, and local agencies who have EIS review responsibilities and also shall be made available to other interested parties upon request.

XVIII. Body of the EIS

- a. Purpose and need. The EIS shall clearly specify the underlying purpose and need to which VT DEC is responding.
- b. Alternatives including the proposed actions. In addition to alternatives indicated in 40 CFR 1502.14, the EIS shall discuss:
 - 1. Alternatives considered by the applicant. This section shall include a balanced description of each alternative considered by the applicant. These discussions shall include size and location of facilities, land requirements, operation and maintenance requirements, auxiliary structures such as pipelines and construction schedules. The alternative of no action shall be discussed and the applicant's preferred alternative(s) shall be identified. For alternatives which were eliminated from detailed study, a brief discussion of the reasons for their having been eliminated shall be included.
 - 2. Alternatives available to VT DEC. VT DEC alternatives to be discussed shall

include:

- a. Taking an action; or
 - b. Taking an action on a modified or alternative project, including an action not considered by the applicant; and
 - c. Denying the action.
3. Identifying preferred alternative. In the final EIS, the responsible official shall signify the preferred alternative.
- c. Affected environment and environmental consequences of the alternatives. The affected environment on which the evaluation of each alternative shall be based includes, for example, hydrology, geology, air quality, noise, biology, socioeconomic, energy, land use, and archeology and historic subject. The discussion shall be structured so as to present the total impacts of each alternative for easy comparison among all alternatives by the reader. The effects of a "no action" alternative should be included to facilitate reader comparison of the beneficial and adverse impacts of other alternatives to the applicant doing nothing. A description of the environmental setting shall be included in the "no action" alternative for the purpose of providing needed background information. The amount of details in describing the affected environment shall be commensurate with the complexity of the situation and the importance of the anticipated impacts.
 - d. Coordination. The EIS shall include:
 1. The objections and suggestions made by local, state, and federal agencies before and during the EIS review process must be given full consideration, along with the issues of public concern expressed by individual citizens and interested environmental groups. The EIS must include discussions of any such comments concerning our actions, and the author of each comments should be identified. If a comment has resulted in a change in the project of the EIS, the impact statement should explain the reason.
 2. Public participation through public hearings or scoping meetings shall also be included. If a public hearing has been held prior to the publication of the EIS, a summary of the transcript should be included in this section. For the public hearing which shall be held after the publication of the draft EIS, the date, time, place, and purpose shall be included here.
 3. In the final EIS, a summary of the coordination process and VT DEC responses to comments on the draft EIS shall be included.

XIX. Incorporation by Reference

Material may be incorporated by reference as provided by 40 CFR 1502.21. In addition such material shall be organized to the extent possible into a Supplemental Information Document and be made available for review upon request. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the period allowed for comment.

XX. List of Preparers

When the EIS is prepared by contract, either under direct contract to VT DEC or through an applicant's or grantee's contractor, the responsible official must independently evaluate the EIS prior to its approval and taken responsibility for its scope and contents. The VT DEC officials who undertake this evaluation shall also be described under the list of preparers.

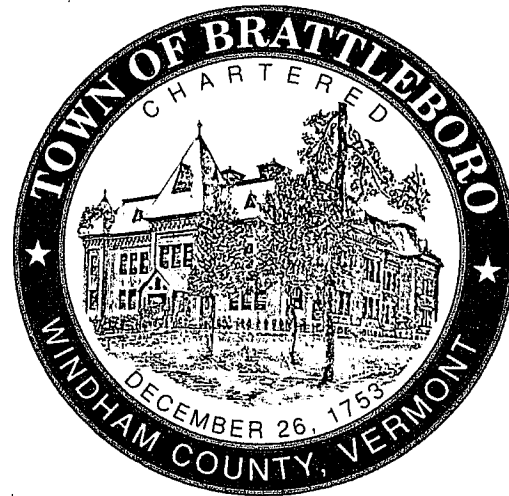
ERP0194

BRATTLEBORO WASTEWATER TREATMENT FACILITY UPGRADE

ENVIRONMENTAL INFORMATION DOCUMENT

PREPARED FOR

THE TOWN OF BRATTLEBORO, VERMONT



MAY 2009

Prepared by

**HOYLE, TANNER & ASSOCIATES, INC.
BURLINGTON, VT**

ENVIRONMENTAL INFORMATION DOCUMENT

1.0 PROJECT IDENTIFICATION

Project Name: Brattleboro Wastewater Treatment Facility Upgrade
Town of Brattleboro, Vermont

Address: Mr. Steve Barrett
Public Works Director
221 Fairground Road
Brattleboro, VT 05301

Project Location: Town of Brattleboro
Windham County, Vermont

2.0 SUMMARY OF ENVIRONMENTAL REVIEW

The following documents are listed for reference in conjunction with the Environmental Information Document:

1. *Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report*, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc.
2. *Wastewater Treatment Facility Upgrade Preliminary Engineering Report*, dated August 2007, prepared by DuBois & King, Inc., for the Town of Brattleboro, Vermont
3. *Wastewater Treatment Facility 20-Year Evaluation and Interim Report*, dated September 2005, prepared by DuBois & King, Inc., for the Town of Brattleboro, Vermont

This information has been reviewed and in accordance with State and Federal regulations, the findings of our environmental review are summarized below:

3.0 PROJECT DESCRIPTION

3.1 Background

The Brattleboro Wastewater Treatment Facility (WWTF) is located off of Riverside Drive adjacent to the Connecticut River, approximately 1.0 mile south of the intersection of State Route 9 and US 5. The Brattleboro WWTF was originally

built in 1967 to treat an average daily flow (ADF) of approximately 1.6 million gallons per day (MGD). A secondary upgrade of the treatment facility occurred in 1984 to treat an approximate ADF of 3.5 MGD in the design year of 2000 (although the facility has had an operating National Pollution Discharge Elimination System (NPDES) permitted flow limitation of 3.0 MGD). The most recent NPDES Discharge Permit No. VT0100064 was issued on July 1, 2004 and has an expiration date of June 30, 2009.

The Brattleboro WWTF is an aging but extremely important infrastructure asset of the Town. Without its proper operation, management, and maintenance the Town's ability to achieve permitted effluent discharge quality standards and sustain residential, commercial, and industrial development would be severely hindered. Much of the existing WWTF equipment and infrastructure has reached the end of its useful life which has caused increased operational and maintenance difficulties in recent years. In addition, the WWTF has experienced an increase in solids and organic loading which has caused a severe burden on the wastewater treatment process.

3.2 Service Area

The Brattleboro WWTF and the associated collection system provide sanitary sewer service for approximately 3,100 customer accounts. It is anticipated that by fiscal year 2010 approximately 275 additional accounts will come online as a result of the Tri-Park infrastructure improvement project. In general, the service area is located in the core downtown area and extends north along US 5 (Putney Road) and west along State Route 9 (Marlboro Road) for approximately 3.2 and 3.8 miles, respectively measured from the intersection of State Route 9 and US 5.

3.3 Proposed Improvements Overview

The proposed Brattleboro WWTF Upgrade Project includes:

- Construction of a new Headworks Building to collocate screening, grit removal, septage and high strength waste receiving and raw wastewater pumping.

- Construction of two new circular primary clarifiers and conversion of an existing wet well structure to selector.
- Replacement of the existing rotating biological contactor (RBC) media and reconfiguration of the structure to improve performance and allow for operational flexibility.
- Conversion of existing secondary clarifiers to center feed configuration and replacement of mechanical components.
- Refurbishment of the existing chlorine contact tank and replacement of mechanical and monitoring components.
- Retrofit of existing anaerobic digesters to accommodate a two-phased digestion process.
- Replacement of solids dewatering equipment.
- Installation of co-generation equipment, capable of producing heat and power from the digester bio-gas.
- Other energy related improvements include; effluent heat recovery, solar thermal hot water, effluent micro-hydro, and lighting, motor and equipment efficiency upgrades.
- Numerous mechanical, electrical, structural and architectural improvements for the existing facility buildings.

3.4 Project Schedule/Duration

The following design and construction schedule is proposed:

Initiated Conceptual Design	Sept. 2008
Project Workshops	Oct. & Nov. 2008
Draft Conceptual Design Report	Jan. 2009
Final Conceptual Design Report	March 2009
Public Information Meetings	April/May 2009
Bond Vote	May 2009
Start Final Design	Spring 2009
Construction Bids	Summer 2009 & Early 2010
Construction Complete	Summer 2012

3.5 Population Data

The estimated populations from the US Census Bureau are listed below.

Area	2007
State of Vermont	621,254
County of Windham	43,480
Town of Brattleboro	11,590

3.6 Flow Projections

The WWTF was originally constructed in 1967 to treat an average daily flow (ADF) of 1.6 million gallons per day (MGD). In 1984 the facility was upgraded to treat an ADF of 3.5 MGD. The discharge permit issued in 2004 authorized the discharge of 3.0 MGD.

Operator logs and discharge monitoring reports from January 2001 through August 2008 report an ADF of 1.72 over this time period and an ADF of 2.16 for 2008. The maximum flow rates over the 2001 to 2008 time period was 9.5 MGD.

Organic loadings for the 2001 to 2008 time frame are summarized in the following table:

TABLE 1 Organic Loadings				
	Plant Influent		Plant Effluent	
	Avg. Historical	Avg. 2008	Avg. Historical	Avg. 2008
BOD ₅ , mg/l	298	276	16	19
TSS, mg/l	439	613	8	10
TkN, mg/l	45	45		
Temperature, °C (Avg. Annual)	16.15	15.90		
Dissolved Oxygen, mg/l	2.71	3.03		

3.7 Roles and Responsibilities of Local Government

The Town of Brattleboro will own, operate and manage all facilities as is currently practiced.

4.0 PURPOSE & NEED

The primary objective of this project is to upgrade the Brattleboro WWTF so that it is capable of providing reliable wastewater treatment in addition to efficiently and effectively meeting its NPDES Permit limitations.

In September, 2005 the Wastewater Treatment Facility 20-Year Evaluation and Interim Report was completed for the Brattleboro WWTF by DuBois & King, Inc. (D&K). The D&K evaluation concluded that the Brattleboro WWTF had generally operated with minor problems over most of its twenty-year life but identified numerous treatment system components that are operating beyond their intended service life which should be replaced in order to ensure ongoing effective and reliable service. Over the past several years, equipment and control system failures have become increasingly common and have repeatedly demonstrated the need for upgrades to the Town's treatment facility. The deficiencies identified have been addressed as a part of the proposed upgrade.

Below is a brief summary of the major deficiencies. A comprehensive discussion of the existing WWTF conditions is provided in the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc.

4.1 Septage and Special Waste Receiving

The existing septage receiving facility at the Brattleboro WWTF consists of two (2), 10,000 gallon uncovered concrete septage tanks located on the northwestern corner of the site. It has been reported that due to operational and maintenance difficulties, the septage receiving facility has not been used since 2000. From 2000-2007, incoming septage was dumped directly into a manhole on the facility

influent pipe prior to the headworks. The acceptance of septage was discontinued in 2007 due to concerns regarding the effects of high strength waste loading on the treatment process.

Large quantities of septage, fats, oils and grease (FOG) and other high strength wastes are generated from within the Brattleboro sewer service area and from within the unsewered areas of the Town and surrounding communities. The Town of Brattleboro has indicated an interest in improving the Septage Receiving Station due to the growing need for proper treatment and the potential revenue received for accepting septage and other special wastes.

4.2 Headworks

Ongoing problems with the headworks facility include; chronic high water alarms, ineffective grit removal, material handling concerns and overflows due to a clogged by-pass screen. Some of the existing headworks equipment is reportedly original to the WWTF and is in poor condition. Headworks facilities are currently located within two buildings.

4.3 Primary Clarifiers

The west and east primary clarifiers are rectangular in shape and have been in service for over 40 years and 20 years, respectively. There is significant deterioration of all metallic parts, and a better means of grease and scum removal prior to the primary settling tanks needs to be installed. The existing clarifiers are relatively shallow (7 foot side water depth (SWD)) and do not meet current design standards. The relatively shallow SWD limits the amount of sludge blanket that can be maintained, and results in solids washing over the weirs during summer months, as well as during higher flow conditions.

In the Wastewater Treatment Facility 20-Year Evaluation and Interim Report, dated September 2005, by DuBois & King, Inc., it was recommended to remove the rectangular primary settling tanks and replace with two new round center-feed clarifiers to meet current design standards and improve the primary clarifier

performance.

4.4 Biological Process Upgrade

Biological treatment is provided by four (4) parallel process trains of five (5) rotating biological contactors (RBC) operated in series. Replacement of the existing twenty (20) RBC units is necessary as a base upgrade for the facility. High organic load to the first stage RBC has caused outbreak of *Beggiatoa* and the overgrowth of fixed film bacteria causes issues with RBC shaft weight, shaft and drive failures, and odor issues. In August 2008, one of the RBC shafts broke and required the removal of RBC media and offsite repair of the damaged shaft.

4.5 Secondary Clarifiers

Due to the age of the secondary clarifiers and the need for ongoing reliable secondary clarification, upgrade of these units is proposed. The internal components of the secondary clarifiers have been in service for approximately 25 years and should be replaced to provide reliable and potentially enhanced secondary clarifier performance.

4.6 Disinfection

The Brattleboro WWTF currently uses liquid sodium hypochlorite (NaOCl) for disinfection. Mechanical components such as influent gates, flash mixers and effluent weirs are significantly degraded and are reportedly causing operational difficulties. In addition, mechanical equipment in the Chlorine Building and surface cracks in the chlorine contact tank have been identified that are in need of repair. The age of the system and the status of the mechanical components require upgrading.

4.7 Digestion

The solids generated from the wastewater treatment process are collected through the primary clarifiers and are treated through a two-stage mesophilic anaerobic digestion process. The process uses oil fired boilers and heat exchangers to heat the sludge and maintain the temperature necessary for the

mesophilic digestion process.

All three digester covers have been rehabbed twice since 1983 and are in poor condition. The floating cover no longer holds gas and there are apparent gas leaks and recurring problems with the pressure and venting systems. Prior studies have led to the recommendation that all digester equipment be replaced, including tank covers, mixing equipment, heating equipment, piping, gas recirculation and all appurtenances.

4.8 Dewatering

Digested sludge is dewatered with a belt filter press prior to onsite storage and ultimate offsite disposal. The Brattleboro WWTF utilizes a single 1.5-meter belt filter press that was installed in 1984. The physical condition of the belt filter press is poor and as a result requires significant routine maintenance by WWTF staff. This equipment is over 20 years old and should be replaced in order to provide ongoing reliable and efficient sludge dewatering capability. The Wastewater Treatment Facility 20-Year Evaluation and Interim Report, dated September 2005, by DuBois & King, Inc. (D&K), concluded that the existing belt filter press and batch polymer mixing system have reached the end of their useful life and need to be replaced.

4.9 Energy Opportunities

Various opportunities have been identified to optimize plant energy use, improve efficiency and capitalize on renewable resource opportunities available at the Brattleboro WWTF. Energy audits including a plant operational overview and a walk through of the facility were conducted at the WWTF to identify potential opportunities for energy efficiency improvements. The energy audits focused on specific types of equipment such as lighting, heating and motors. Energy supply and demand side opportunities related to the proposed WWTF upgrade have been identified.

4.10 Collection System Pump Stations

The Town's wastewater collection system includes approximately 50 miles of gravity and force main sewers, more than 1,200 manholes and six pump (or ejector) stations including; Exit One Pump Station, Wilson Woods Pump Station, Black Mountain Ejector Station, Spring Tree (West River) Pump Station, Retreat Pump Station, Riverside (Irving) Ejector Station.

The pumps stations are designed to operate automatically in response to the wet well level. In efforts to keep up with the flow, compressors in some of the ejector stations have overheated. A thorough investigation and evaluation of the existing collections system pump stations was conducted during the conceptual design phase of the WWTF upgrade project. A comprehensive discussion on the condition of the Town's existing pump stations, including pump condition, pump controls, electrical and mechanical components is provided in the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc.

In general, due to the age of these stations and the many hours of operation of the pumps, compressors and controls; the mechanical components of some of the stations have reached, or are approaching, the end of their useful life. For some of the older equipment, spare parts are difficult to obtain. The confined space entry procedures, which some of the stations require, makes operation and maintenance more challenging.

5.0 DISCUSSION OF ALTERNATIVES

A detailed presentation of alternatives considered for individual process components is put forth in the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc. No attempt has been made to summarize and present herein the comprehensive alternative evaluation process that was conducted during the conceptual design phase of the WWTF upgrade project. Interested parties are

encouraged to review the March 2009 Conceptual Design Report for a detailed discussion of alternatives.

6.0 PROPOSED FACILITY IMPROVEMENTS

The following is a brief description of the proposed improvements at the Brattleboro WWTF and various collection system pump stations. Additional detail on the proposed facility improvements is provided in the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc.

6.1 Septage and Special Waste Receiving

Proposed septage facilities include a septage complete plant and new storage tanks to be constructed along with a new headworks and influent pumping station. Septage receiving facilities will be provided to receive septage, FOG and other high strength wastes that will be trucked into the WWTF. Facilities will include a septage hauler station, septage receiving unit, and aerated storage tanks.

6.2 Headworks

The construction of a new Headworks Building located at the north east corner of the site is proposed. Construction of this new facility will allow for the collocation of screening, grit removal, septage and high strength waste receiving and raw wastewater pumping. All process, heating, ventilating, and electrical equipment inside the "wet side" of the Headworks Building will be designed for exposure to a high humidity, corrosive, and hazardous environment. A "dry side" of the new Headworks Building will be constructed to house an electrical/control room and septage blowers on the upper level, and pump room on the lower level.

6.3 Primary Clarifiers

Replacement of the existing rectangular clarifiers with two new round center-feed clarifiers with new weirs, baffles, rake arms, drives and scum boxes is proposed. The new primary clarifiers will be located along the eastern site boundary, south of the existing primary clarifiers. The new clarifiers will receive influent through a

force main extending from the new Headworks Building, east of the Digester Building, and will allow the water surface elevation in the primary clarifiers to be raised. Primary effluent would flow by gravity to a proposed selector that will be constructed within an existing wet well structure or directly to the rotating biological contactors (RBCs). A pump house, located between the two new primary clarifiers, is proposed to house sludge pumps used to transport co-settled sludge from the primary clarifiers to the digester.

6.4 Biological Process Upgrade

The twenty (20) rotating biological contactor (RBC) units will be replaced and reconfigured as four (4) process trains of three (3) units operated as a complete mix basin followed by two units in series, a 3-Stage RBC process. A graduation of media density will allow better control of shaft weight and configuration to a 3-stage process will distribute the organic load over three times the current surface area in the first stage, minimizing conditions that currently allow *Beggiatoa* overgrowth.

The existing primary effluent pump station wet well will be retrofitted to a moving bed fixed film selector. The selector will be equipped with both diffused aeration and with submersible mechanical mixers to allow operation as aerobic or anoxic in order to augment BOD removal ahead of the RBC process.

6.5 Secondary Clarifiers

The two existing 68' diameter peripheral-feed circular clarifiers will be retrofitted to center-feed configuration and equipped with new mechanical components. The proposed secondary clarifier upgrade will include the following equipment: drives, overload protection, shafts, influent pipes, energy dissipating inlets, flocculating feedwells, skimmers, rake arms, bridges, effluent troughs, hardware, effluent weirs, scum baffles, density current baffles and startup services. Sludge blanket level detectors and sludge pumps would also be furnished.

6.6 Disinfection

Continuation of liquid sodium hypochlorite disinfection with the incorporation of redundant flash mixing capability is proposed. The existing chlorination disinfection system will be upgraded with new mechanical equipment, chemical feed equipment, monitoring equipment, chlorine contact tank repairs and Chlorine Building upgrades. Cracks in the chlorine contact tank will be routed and grouted to prevent fluid infiltration into the tank walls. A waterproof protective coating will be applied to the interior tank walls. Proposed building improvements include electrical, mechanical and architectural upgrades including a proposed expansion in the northwest corner.

6.7 Digestion

The existing sludge stabilization process will be retrofitted into a two-phase (thermophilic followed by mesophilic) anaerobic digestion process. The three existing anaerobic digesters will be rehabilitated into one thermophilic digester and two mesophilic digesters. The proposed digester upgrade will include the following new components: digester covers, mixing equipment, gas piping, heating and heat exchange equipment. In addition, the installation of two feed sequencing tanks north of the existing Digester Building and a co-generation system, capable of producing heat and power from digester bio-gas, located in the west end of the existing Digester Building, is proposed.

6.8 Dewatering

Replacement of the existing dewatering equipment with two (2) four-channel rotary press units is proposed. A two unit configuration will provide for a level of redundancy that will allow for dewatering operations to continue if one unit is out of service. Dewatered sludge will drop onto a conveyor system and will be transported and deposited into a full size trailer for offsite disposal. The existing Headworks Building will be retrofitted to accommodate the new dewatering equipment, full size trailer bay and service garage with storage room and support facilities.

6.9 Energy Opportunities

In addition to the installation of a co-generation system that will utilize digester bio-gas, other proposed energy related improvements include; effluent heat recovery, solar thermal hot water, effluent micro-hydro, and numerous lighting, motor and equipment efficiency upgrades. Furthermore, improvements to existing site buildings will include enhanced building insulation.

6.10 Collection System Pump Stations

As part of this project major upgrades are proposed for three of the Town's six pump (or ejector) stations including; Black Mountain Ejector Station, Spring Tree (West River) Pump Station, and Riverside (Irving) Ejector Station. Proposed improvements at the Black Mountain Ejector Station include installation of a submersible pump station with an exterior wet well. At the Spring Tree (West River) Pump Station the proposed upgrade alternative includes an in-kind replacement of dry pit submersible pumps in the existing rehabilitated structure. Finally, the proposed improvements at the Riverside (Irving) Ejector Station include installation of a submersible pump station with a prefabricated wet well.

7.0 IMPACT OF PROPOSED PROJECT ON THE ENVIRONMENT

7.1 Direct Impact

Air Quality

No significant direct impacts to air quality are anticipated as a result of this project. Total emissions from the proposed treatment facility are not expected to have a detrimental effect on ambient air quality in the area.

Construction activities could create a temporary negative impact to air quality in the immediate area due to the use of diesel-drive construction equipment. Equipment operation may also temporarily increase airborne particulates (dust).

Foul odors may be produced when improperly digested sludge is agitated or

stockpiled. Well digested sludge will have a musty ammonia smell, but should not produce odors noticeable beyond the facility.

Water Quality and Quantity

The completed project should increase the quality of treated effluent. This project will not impact groundwater or drinking water supplies. Applicable construction and post-construction stormwater control measures will be employed to effectively manage stormwater runoff.

Floodplains

The Brattleboro WWTF is located within a known floodplain as indicated on the Windham County, Vermont Flood Insurance Rate Map (FIRM) dated September 28, 2007. The site is located in FIRM Zone AE, described as an area where the base flood elevations have been determined. Although relatively minor historic flooding has been reported by WWTF staff, flooding at the predicted 25-year and 100-year elevations would be significant throughout the WWTF site. The Brattleboro WWTF is located outside of the mapped floodway area as indicated on the Windham County, Vermont FIRM dated September 28, 2007.

Proposed upgrades to the Brattleboro WWTF will be designed with consideration given to all applicable flood protection guidance and regulations.

Wetlands

Based on the Agency of Natural Resources online Environmental Interest Locator tool and the available Vermont Significant Wetland Inventory (VSWI) Maps, there appears to be significant wetlands located in the vicinity of the proposed Brattleboro WWTF Upgrade project. However, the boundary of the mapped wetlands is shown to be directly through the southern half of the existing WWTF site and appears to be inaccurate. Although, wetland permitting issues were not identified on the completed Project Review Sheet, further investigation regarding this issue is warranted and ongoing. Despite the VSWI mapping, project related wetland impacts are not anticipated at this time.

Prime Agricultural Land

The proposed project site is located at the existing treatment facility in an industrial area of Brattleboro. There is no active farming or the potential for farming at this site; therefore no adverse impacts on prime agricultural lands are anticipated.

Stream Modifications

There are no changes proposed to the facility's existing outfall in the Connecticut River, which will remain in service. This project will not involve any work within any river or stream and will not require a stream alteration permit.

Land Use

The proposed facilities will be constructed at the existing Brattleboro Wastewater Treatment Facility site, which is owned by the Town of Brattleboro.

Relocation of People

People or businesses will not be relocated as a result of this project.

Socio-Economic Impacts

The Engineer's Total Project Cost estimate for this project was determined to be \$32,768,000. A detailed presentation of the estimated project costs is provided in the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc. The Town has applied for State financing through the Clean Water State Revolving Fund (CWSRF) program to fund conceptual design engineering services and is preparing to apply for additional project funding through the CWSRF program. The Town is also aggressively seeking other potential sources for funding, including various Federal and State grant programs, to reduce the overall cost to the Town's rate payers. On May 8, 2009 Brattleboro Town Representatives voted to approve a \$32.8 million bond to upgrade the Town's WWTF.

The project will be publicly advertised and competitively bid with special notices

sent to Disadvantaged Business Enterprises. The project will create temporary construction jobs including a project manager, construction superintendent, skilled tradesmen, skilled and unskilled laborers, and equipment operators.

Since the project is designed to replace existing equipment and construct new treatment processes and buildings at the existing facility location, it does not lend itself to multi-use opportunities or creation of parks.

Boundary survey research began in August 2008 and continued through October 2008. The total area of the Brattleboro WWTF parcel was determined to be 5.79 acres $\pm$ and is owned by the Town of Brattleboro.

Due to the location of the existing facility fence line in relation to the property boundaries, two separate encroachment areas were identified along the eastern central portion and northern end of the site. The encroachment along the eastern central portion of the site was estimated to be 0.21 acres in size onto Boston & Maine / Pan Am Railways property. The encroachment at the north end of the site was estimated to be 0.07 acres and onto property owned by New England Central Railroad.

Since 1977 the Town has had a lease with the Boston & Main Corporation for use of the property along the eastern central portion of the WWTF parcel. The originally identified area of encroachment along the eastern central portion of the site is contained completely within the boundaries of the leased land. No such lease or easement has been identified for the apparent encroachment area located at the north end of the site. The Town plans to initiate discussions with the owner of the property located north of the WWTF site.

The Town has been informed by the Boston & Maine / Pan Am Railways that the adjacent property is formally abandoned and could be available for purchase. The Town has expressed interest in pursuing the purchase of land along the

eastern portion of the WWTF property from Boston & Maine / Pan Am Railways to facilitate construction and operation of this and future facility upgrades. In addition, purchase of this parcel from the Boston & Maine / Pan Am Railways could facilitate recreational opportunities such as construction of a bike/pedestrian path.

Institutional constraints are taken to be local/regional institutions such as the Town Selectboard, Town Planning Commission, and the Windham Solid Waste Management District. All have been made aware of this project and have indicated their support.

Anticipated improvements in water quality in the Connecticut River resulting from this project would have direct recreational benefits.

Historical/Archeological Site Review

As part of the conceptual design phase of the Brattleboro WWTF Upgrade project, the University of Vermont Consulting Archaeology Program (UVM CAP) was retained to perform an Archaeological Resources Assessment (ARA) for the existing Brattleboro WWTF site. The ARA was conducted as part of the Section 106 permitting process and did not identify any areas as archaeologically sensitive for precontract era Native American or historic period Euroamerican archaeological sites. Much of the site has been extensively disturbed as a result of constructing the existing WWTF. However, two areas were identified in the north half of the site that may contain deeply buried archaeological deposits. Although there is indication of some surface disturbance at both of the identified locations, soils well below the surface could possibly be intact and contain archaeological sites. Therefore it is recommended that prior to any deep (greater than 2 feet below surface) excavation in these locations associated with the proposed facility upgrades, backhoe trenching be inspected by a professional archaeologist. Construction activities associated with the proposed Headworks Building and force main will likely occur within the identified areas. The ARA

concluded that the proposed project will have no effect on significant cultural resources and no additional work is recommended. A copy of the ARA is appended to the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc.

Endangered Species

Primary screening has revealed that no known threatened or endangered species habitat exists at the Brattleboro WWTF site.

Coastal Zone Management

There are no coastal zones in the State of Vermont.

Wild and Scenic Rivers

The National Park Service's Nationwide Rivers Inventory does not classify the Connecticut River as a Wild or Scenic River.

7.2 Indirect Impacts

The proposed WWTF upgrade will not result in an increase in the hydraulic capacity of the facility. The Brattleboro WWTF was originally built in 1967 to treat an average daily flow (ADF) of approximately 1.6 million gallons per day (MGD). A secondary upgrade of the treatment facility occurred in 1984 to treat an approximate ADF of 3.5 MGD in the design year of 2000 (although the facility has had an operating National Pollution Discharge Elimination System (NPDES) permitted flow limitation of 3.0 MGD). The proposed WWTF upgrade is based on an ADF of 3.0 MGD.

The proposed upgrade to the Brattleboro WWTF will result in an increase in the organic capacity of the facility. Based on the Operations & Maintenance Manual from the 1984 facility upgrade, Appendix 8 – Detailed Design Criteria, the secondary upgrade to the Brattleboro WWTF was based on an influent organic loading of 5,300 lbs/day of Biochemical Oxygen Demand (BOD) at an ADF of 3.51 MGD. The proposed WWTF upgrade is based on an influent organic loading

of 7,756 lbs/day of BOD (310 mg/l at an ADF of 3.0 MGD). This represents an approximate 46.3% increase in organic loading capacity for the facility.

The relatively high organic concentrations observed in Brattleboro's influent wastewater warrants implementation of a Town-wide industrial pretreatment and enforcement program. It is suspected that some industrial facilities are discharging high-strength organic wastes to Brattleboro's sewer system and that those discharges are significantly contributing to the increase in organic loading observed in recent years. Implementation of an industrial pretreatment and enforcement program in combination with the proposed organic loading capacity of the upgraded WWTF will allow for the Town to adequately manage the existing and expected influent wastewater stream.

8.0 MITIGATION OF ENVIRONMENTAL IMPACTS

Proposed mitigation measures to minimize the anticipated short term environmental impacts identified in Section 7 include:

8.1 Air Quality Impacts

Dust and exhaust fumes resulting from construction activities may adversely affect air quality. Construction documents will require the contractor to control dust and exhaust fumes with the latest available techniques and equipment consistent with Federal, State and Local Regulations.

8.2 Water Quality Impacts

Erosion and sedimentation resulting from uncontrolled runoff could adversely affect water quality in the Connecticut River. Structural controls and best management practices consistent with Phase II Stormwater, Local and State Regulations will be used to preserve the water quality of the receiving water bodies. Erosion and sediment control measures and maintenance of the controls will be stipulated in the construction documents.

9.0 SUMMARY OF AGENCY AND PUBLIC CONSULTATION

Brattleboro staff have worked closely with the Vermont Department of Environmental Conservation (VTDEC), Facilities Engineering Division relative to the WWTF Upgrade project. A draft of the Brattleboro WWTF Upgrade Conceptual Design Report was prepared and distributed to the Town and State staff in mid-January 2009. Project Team members worked to address all comments received from both Town and State staff while developing the final Brattleboro WWTF Upgrade Conceptual Design Report which was distributed in late-March/early-April 2009.

9.1 Public Participation

The public outreach and education portion of the Brattleboro Wastewater Treatment Facility (WWTF) Upgrade project was comprised of several components including the development of an educational video, development of an informational page on the Town's website, public information forums and WWTF tours. The public outreach and education effort began in October 2008 and has included the following tasks:

- Preparation of a previously broadcast video called *A Drop in the River*, which focuses on the process of household toxic materials entering the treatment plant, for re-broadcast. This included capturing the video from video home system (VHS) format to a new digital format and re-editing beginning titles to indicate that the video was being re-broadcast in order to provide educational background for the coming WWTF upgrade project. This video was broadcast between December 8, 2008 and December 22, 2008.
- Production of a new video to be broadcast that provides an educational overview of the WWTF and upgrade process. *Understanding Brattleboro's Wastewater Treatment Plan Upgrade* was completed in March 2009. The video contains interviews with various Town staff and Project Team members who describe the treatment process and proposed upgrade project. The video is available for viewing on the internet and has also aired on local television.

- Information regarding the WWTF Upgrade project has been made available on the Town's website.
- Prior to the Representative Town Meeting on May 7, 2009, a series of public information meetings and plant tours were conducted. Public information meetings were held on April 15, 2009 and April 28, 2009. WWTF Tours were offered to the public on May 2, 2009 and May 5, 2009. Project Team members were available to provide an overview of the proposed upgrade project and an opportunity for "questions and answers".
- On May 8, 2009 Brattleboro Town Representatives voted to approve a \$32.8 million bond to upgrade the Town's WWTF.

9.2 Public Objections

No significant objections to the project have been raised to date.

9.3 Permit Review

The potential permits that may be required for the Brattleboro WWTF upgrade project were reviewed during the conceptual design phase. To this end, a Project Review Sheet was completed by a Permit Specialist with the Environmental Assistance Office of the Vermont Department of Environmental Conservation (VTDEC) and is appended to the Brattleboro Wastewater Treatment Facility Upgrade Conceptual Design Report, dated March 2009, prepared by Hoyle, Tanner & Associates, Inc. Furthermore, a discussion on the applicability of various permit requirements is also provided within the Conceptual Design Report. While not all of the identified permits/approvals may prove applicable to the Brattleboro WWTF Upgrade project, attention will be given to ensure compliance with relevant permit/approval measures during final design.

10.0 LIST OF AGENCIES AND GROUPS CONSULTED

The following contacts have been made to date relative to the proposed project:

- Mr. Dennis Bryer, P.E., VT DEC, Wastewater Management Division, Discharge Permits Section
- Mr. Larry R. Fitch, P.E., VT DEC, Facilities Engineering Division
- Mr. Thomas Joslin, P.E., VT DEC, Facilities Engineering Division
- Mr. Christopher Kay, VT DEC, Wastewater Management Division, Residuals Management Section
- Mr. George Murray, Windham Solid Waste Management District
- Mr. Nopadon Sundarabhaya, P.E., VT DEC, Facilities Engineering Division
- Mr. Gary Swindler, Efficiency Vermont