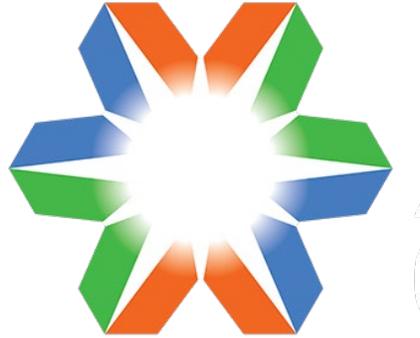


**FACILITY APPLICATION  
SOLID WASTE PROCESSING**



**ARIES PINE TREE, LLC**

**JANUARY 7, 2026**

*Prepared for:*

**Aries Pine Tree LLC**  
Cyro Road Lot 4  
Sanford, Maine 04073

*Prepared by:*

**Epsilon Associates**  
3 Mill and Main Place, Suite 250  
Maynard, MA 01754

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Attachment B	Notice of Intent to File and Mailing Confirmation
Attachment C	USGS Topographical Map
Attachment D	Documentation of Right to the Site
Attachment E	1000-Foot Facility Abutters
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## 1.0 INTRODUCTION

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### 1.1 Application Content

Aries Pine Tree LLC will be a solid waste processing facility subject to Ch. 400 (General Provisions) and Ch. 409 (Processing Facilities) of the Maine Rules of the Department of Environmental Protection. This Application is therefore submitted in accordance with the currently effective version of Maine DEP's *Application for a Solid Waste Processing Facility* form<sup>1</sup>. A completed and signed form is included in *Attachment A*.

The following sections of this Application correspond to the instructions of the above-referenced application form, which are quoted in *italics*. Selected subsections of Chapters 400 and 409 of the Maine Solid Waste Management Rules are also referenced where applicable.

### 1.2 Pre-Application Meeting

*Applicants proposing to establish a new solid waste processing facility are encouraged to meet with DEP staff to discuss the proposed project. The meetings can help avoid unnecessary expense and processing delays.*

On November 14, 2024, April 11, 2025, and November 10, 2025, representatives of Aries Pine Tree LLC and its environmental consultant (Epsilon Associates) met with Eric Hamlin and Derek DeCastro of Maine DEP's Bureau of Remediation and Waste Management, to discuss pertinent aspects of the proposed facility. Specific points of discussion are referenced throughout this Application where applicable.

### 1.3 Notice of Intent to File

*Attachment B* contains documentation that Aries Pine Tree LLC complied with the public notice provisions of this Application as per Maine DEP's instructions dated 3/24/2025 and 11/10/2025, namely,

- Publish a "Notice of Intent to File" this application once in a newspaper of general circulation in the vicinity of or as close as possible to the area where the project is located. The notice should appear in the newspaper within 30 days prior to filing the application with the DEP.
- Send a copy of the "Notice of Intent to File" to all persons owning land within 1,000 feet of the proposed project, and to the chief municipal officer and to the

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<sup>1</sup> <https://www.maine.gov/dep/waste/solidwaste/documents/409app.pdf>

chairperson of the planning board in the municipality where the project is to be located. Recipients must receive notice within 30 days prior to filing the application with the DEP. Confirmation of this notice such as certified mail receipts or Certificates of Mailing is also included in *Attachment B*.

- Submit to the Department an electronic copy of the application along with all attachments, a copy of the “Notice of Intent to File”, and a check for the appropriate application fee made payable to “Treasurer, State of Maine”. Any part of the application which has been prepared by a P.E., C.G. or C.S.S. must be stamped and signed by that person. If the applicant is a corporation, a certificate of good standing from the Secretary of State must be included. (See *Attachment T* for Certificate of Good Standing.)
- Send one complete electronic copy of the application and any amendments that are subsequently submitted to the Municipal Office of the town within which the project is located. The application must be filed in the municipal office at the time of filing with the DEP.

## **2.0 GENERAL INFORMATION**

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### **2.1 Project Description**

*Provide a brief description of the proposed processing facility, including the types of waste to be handled.*

Aries Pine Tree LLC is a biosolids gasification facility located on an 11-acre site identified as Lot 4 within the Cyro Road Industrial Park in Sanford, Maine. In brief: dewatered biosolids from regionally located municipal wastewater treatment facilities will be accepted by truck primarily from Maine, Southern New Hampshire and Eastern Massachusetts; after being dried, the biosolids are then gasified using a proprietary fluidized bed process, which reduces the biosolids to a useful biochar (collected by truck for off-site use or disposal) and a producer gas (combusted on-site using a thermal oxidizer, which removes pollutants and produces useful heat that is recycled within the facility.) Aries Pine Tree LLC therefore qualifies as a solid waste processing facility but not a solid waste disposal facility in accordance with Ch. 400.1, as the biosolids are not incinerated or landfilled.

Aries Pine Tree LLC will be capable of receiving up to 500 wet tons per day of biosolids cake by truck and processing up to ~450 wet tons per day. No liquid biosolids will be accepted. The facility is equipped to operate 24 hours per day, 7 days per week, though in practice biosolids receiving and product loadout will generally be limited to the hours of 6:00 AM to 6:00 PM, Monday through Saturday. Acceptance of biosolids on Sundays may occasionally occur.

### **2.2 Schedule**

- Proposed date of start of construction: 11/2026
- Proposed date of start of operation: 8/2028
- Anticipated lifetime of facility use: 30 years

### **2.3 Topographic Map**

*Submit the most recent full size U.S.G.S. topographic map (7.5 minute series if available) showing the location of the proposed facility, the waste facility boundary and the property boundary. If the facility will be handling putrescible wastes, also show all airports within 10,000 feet of the waste handling area. The map must include all surrounding areas within one mile of the proposed waste handling area.*

The required USGS map is attached as *Attachment C*. As shown therein, the Sanford Seacoast Regional Airport is approximately 4,000 ft. south of the facility at its nearest runway. Although biosolids are considered a putrescible waste, the facility's handling and

processing of biosolids will be conducted indoors under negative pressure and will have no feasible effect on airport operations, including any increase in local bird populations. The facility will also be subject to FAA Notification for the main stack.

#### **2.4 Title, Right, or Interest**

*State the number of acres included in the facility site. ("Facility site" means any developed land area of a solid waste facility, including internal access roads controlled by the facility site owner or operators, structures (including those for erosion and sedimentation control), parking lots, and waste handling areas, or any areas thereof approved by the Department for that development, but excluding monitoring wells.) Attach copies of deeds, leases, contracts or agreements that establish the applicant's title, right or interest for the proposed site.*

The facility site is 11 acres in total. The executed Purchase & Sale Agreement for the site is included in *Attachment D*.

#### **2.5 Abutters**

*Attach a copy of the municipal tax map with the proposed site and names of abutting property owners clearly marked. Also, include a list of the names and addresses of all the owners of property abutting the proposed facility site.*

Documentation of the facility's abutters is included in *Attachment E*. Per guidance received from Maine DEP, all persons owning land within 1,000 feet of the proposed project are considered abutters for purposes of this application.

#### **2.6 Financial Ability**

*Submit evidence that affirmatively demonstrates the financial ability of the applicant to develop the project in a manner consistent with the State environmental standards and laws, [including]:*

*(a) Accurate cost estimates for the design, construction, operation, maintenance, closure and (if applicable) post-closure care of the solid waste facility; and*

The estimated engineering design cost for the project is approximately \$6 million, based on costs incurred to date and projected additional expenses. The construction cost for the project is estimated to be in the range of \$180-200 million, based on the detailed engineering design work completed to date and third-party cost estimates. The annual operating cost for the facility, which includes labor, utilities, water/sewer costs, consumables, and regular maintenance, is estimated to be ~\$9.5 million per year adjusted for inflation.

*(b) Evidence that funds are or will be available to design, construct, operate, maintain, close and (if applicable) accomplish post-closure care of the solid waste facility, or to contract for the same.*

Aries will fund the project from several sources. Approximately 70% of the project construction cost will be funded through tax-exempt municipal bonds that will be issued through the Finance Authority of Maine (FAME). An application for a municipal bond allocation was submitted to FAME on February 28, 2025, and a notice of project intent was filed with the DEP as required by FAME rules on the same date. A copy of the Tax-Exempt Bond Inducement Agreement executed by FAME and Aries is included as *Attachment F*.

The remaining 30% of the project construction cost will be financed with funds that Aries is raising from a prominent infrastructure private equity fund. The project is also eligible for the Section 48E federal investment tax credit which provides for a credit for up to 40% of eligible, qualifying project capital expenses.

The gasification facility is expected to have at least a 30-year useful life. The cost to demolish the facility at the end of its useful life is expected to be approximately 3% of the construction cost (\$5-6 million). Since no waste will be disposed of on-site, no post-closure costs will be incurred.

## **2.7 Technical Ability**

*Include evidence that affirmatively demonstrates that the applicant has the technical ability to design, construct, operate, maintain and close the facility. If the proposed project will be managed by other than the applicant, state the persons or businesses that will be responsible for management and operation of the facility. This information should include the applicant's or operator's prior experience and/or appropriate training related to the nature of the proposed facility, and a description of the personnel who will be employed to design, construct, operate, maintain and close the facility.*

Aries Pine Tree LLC is being developed and will be operated by appropriately qualified & experienced professionals. Additional details on the key entities referenced in this application are provided below.

### **2.7.1 Aries Pine Tree LLC**

Aries Pine Tree LLC, via its parent company, Aries Clean Technologies, LLC of Franklin, TN ([www.ariescleantech.com](http://www.ariescleantech.com)) owns and operates proprietary fluidized bed gasification technology that processes biosolids generated at municipal wastewater treatment plants. Since 2010, Aries designs, builds, owns and operates projects using its proven, patented gasification system for customers managing municipal biosolids, thereby gasifying

materials that would otherwise be landfilled while producing renewable energy and beneficial use products.

Although Aries Pine Tree LLC uses an innovative design, the gasification technology owned by Aries Clean Technologies was used to develop a pilot project in Florida and subsequently a commercial scale facility in Linden, New Jersey. Additional information on this project is available at: [https://ariescleantech.com/case\\_studies/bringing-clean-sustainable-biosolids-gasification-to-new-jersey/](https://ariescleantech.com/case_studies/bringing-clean-sustainable-biosolids-gasification-to-new-jersey/). Three plants, including Aries Pine Tree LLC, are expected to be construction ready within 4 years.

The specific design for the Aries Pine Tree LLC site will be an improvement on the Linden design, using a better dryer design, improved material handling, hot oil heating instead of air heating, and other upgrades. The design is being done during an engineering phase known as FEL 3.

Once construction is completed, the EPC contractor will turn the facility over to Aries Pine Tree LLC, who will hire a plant manager (“Superintendent”) and other operations personnel. These individuals will receive initial and ongoing site-specific training from the EPC contractor and experienced Aries personnel from the Linden plant. The Operational and Maintenance Organization chart is provided in *Attachment U* for reference.

### **2.7.2 Hargrove and Associates**

Hargrove and Associates ([www.hargrove-epc.com](http://www.hargrove-epc.com)), headquartered in Mobile, AL, will perform the site-specific FEL3 design referenced above and will prepare an Issued for Design (IFD) engineering package. The intent is that Hargrove will also perform as the EPC contractor.

See *Attachment V* for a Hargrove experience profile.

### **2.7.3 Epsilon Associates**

Epsilon Associates Inc. of Maynard, MA ([www.epsilonassociates.com](http://www.epsilonassociates.com)) is the environmental consulting and engineering firm preparing this Solid Waste Processing Application and the Air License Application on behalf of Aries Pine Tree LLC. Epsilon is performing the noise, odor, and PFAS studies included herein. Epsilon has strong experience with biosolids in general and the Aries technology in particular, and with licensing complicated projects in the Northeast. Epsilon has previously supported Aries with permit applicability review and agency interactions for a contemplated biosolids gasification facility in Devens, MA; prepared the technical analyses and Environmental Impact Report for a previously proposed biosolids gasification facility in Taunton, MA; and is providing ongoing as-needed support to the Aries Linden, NJ facility including PFAS modeling. For the proposed Taunton

facility, Epsilon was additionally tasked to participate in public meetings, meetings with stakeholders, and an interview with the press. The Devens and Taunton, MA projects were cancelled due to subsequently discovered site limitations.

In general: Epsilon supports major energy, industry and community projects across the northeastern United States, numbering over three thousand to-date since 1997. Core services include environmental permitting, air quality assessment including odor / modeling, acoustic assessment / modeling, historic preservation services, ecological sciences services, coastal and marine services, environmental justice analyses, greenhouse gas assessments, and GIS services. Markets served include real estate and commercial development, institutional development, transportation infrastructure, energy generation / storage / transmission, offshore / onshore wind energy, and industrial / manufacturing clients.

#### **2.7.4 Civil Consultants**

Civil Consultants Inc. (CivCon) of South Berwick, ME ([www.civcon.com](http://www.civcon.com)) is providing civil engineering support to Aries Pine Tree LLC, including the Traffic Generation Study and the Stormwater & Sediment Control Plan included herein.

See *Attachment W* for CivCon experience profile for reference.

#### **2.7.5 Credere Associates**

Credere Associates, LLC of Westbrook, ME ([www.crederellc.com](http://www.crederellc.com)) is performing the Geotech and subsurface water evaluations included herein. See *Attachment X* for Credere's experience profile for reference.

### **2.8 Disclosure Statement**

*Attachment G* contains a disclosure statement regarding the criminal or civil record of the owner, operator, or anyone having a legal interest in the applicant or the facility, including:

- Any officers, directors, and partners;
- All other persons or business concerns, having managerial or executive authority and holding more than 5 percent of the equity in or debt of that business unless the debt is held by a chartered lending institution;
- All other persons or business concerns other than a chartered lending institution having a 25 percent or greater financial interest in the applicant; and

- The managerial person with operational responsibility for the facility or activity

The disclosure statement includes:

- Applicant Information. The full name, business address, home address, date of birth, social security number (if requested) and Federal Employer Identification number of the persons required to disclose under this section;
- Related Companies. The full name and business address of any company that collects, transports, treats, stores, or disposes of solid waste or hazardous waste in which any of the persons required to disclose under this section holds at least a 5% equity interest;
- Criminal Convictions. A listing and explanation of any criminal convictions of the State, other states, the United States, or another country of the persons required to disclose under this section;
- Civil Violations. A listing and explanation of any adjudicated civil violations of environmental laws or rules administered by the State, other states, the United States, or another country by any of the persons required to disclose under this section in the 5 years immediately preceding the filing of the application;
- Consent Decrees and Administrative Orders or Agreements. A listing and explanation of administrative agreements or consent decrees entered into by, or administrative orders directed at, any of the persons required to disclose under this section for violations of environmental laws administered by the Department, the State, other states, the United States or another country in the 5 years immediately preceding the filing of the application;
- Other Proceedings. A listing and explanation of any ongoing court proceeding, administrative consent agreement negotiation, or similar ongoing administrative enforcement action not already provided in which the applicant or any of the persons required to disclose under this section is a party and which concerns environmental laws administered by the Department or the State; and
- Other Information. A listing of any agencies outside of Maine that have regulatory responsibilities over the applicant in connection with its collection, transportation, treatment, storage or disposal of solid or hazardous wastes and any other information required by the Department or

the Office of the Attorney General that relates to the enforcement history or character of the applicant.

**2.9 Other Authorizations**

*Identify all environmental or land use licenses, permits, or authorizations which are or may be required by any governmental agency. Indicate those now held, and when the remaining licenses and permits will be obtained.*

The applicable authorizations are listed in *Table 2-1*.

It should also be noted that a Natural Resources Protection Act (NRPA) Approval is not needed since there are no wetland areas within 75 feet of the disturbed area of the site. Furthermore, as discussed in Section 5 and *Attachment N*, facility traffic impacts will be insignificant (68 facility-related trips/day vs. 16,340 unrelated trips/day, representing a 0.5% increase).

**Table 2-1 Other Environmental Authorizations**

Approval Type	Status	Agency Name	Anticipated Submittal Date
Building permit		City of Sanford	10/2026
Wastewater discharge permit		Sanford Sewerage District	5/2026
Plumbing permit		City of Sanford	10/2026
Curb cut permit		City of Sanford	10/2026
Air emissions license*		Maine DEP	1/2026
Site Plan Approval		City of Sanford	6/2026
FAA Notification		FAA	6/2026
SPCC Plan		U.S. EPA	8/2028

\* Pre-application meetings for the Air License Application were held on 10/8/2024 and 10/23/2025; an Air Modeling Protocol was submitted on 12/11/2024 and approved by ME DEP on 2/10/2025.

**2.9 Fitting Harmoniously into the Natural Environment**

*Identify all unusual natural areas on or adjacent to the facility site and include evidence that affirmatively demonstrates that the proposed facility will not unreasonably adversely*

affect protected natural resources. ["Protected natural resource" means a coastal sand dune system, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds or rivers, streams or brooks, as these terms are defined in 38 M.R.S.A. §480-B of the Natural Resources Protection Act.]

As specified in §400(E), Aries Pine Tree LLC has obtained correspondence from the Maine Department of Inland Fisheries and Wildlife, and from the Natural Areas Program of the Maine Department of Agriculture, Conservation, and Forestry, that the proposed project will not impact zoological or botanical habitats, respectively. These materials are included in Attachment H.

Also, submit information confirming that the waste handling area at the proposed facility will not [meet any of the criteria listed below]

**Table 2-2 Natural Environment Criteria**

<b>Criteria [the waste handling area will not be...]</b>	<b>Status</b>
Closer than 100 feet to the solid waste boundary of an active, inactive or closed solid waste landfill;	No landfills are within 100 feet of the site per Figure 2-1.
Within a 100 year flood plain	The waste handling area is not within a 100 year flood plain, per Attachment P.
Within 100 feet of a protected natural resource	The waste handling area is not within 100 feet of a protected natural resource per Attachment P.
In, on or over a protected natural resource, or on land adjacent to the following areas, without first obtaining a permit pursuant to 38 M.R.S. section 480-A et seq.: (i) A coastal wetland, great pond, river, stream or brook, or significant wildlife habitat contained within a freshwater wetland; or (ii) Freshwater wetlands consisting of or containing: - under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments or - peatlands dominated by shrubs, sedges and sphagnum moss;	The waste handling area is not in, on or over a protected natural resource or on land adjacent to any of these natural features per Attachment P. The active portions of the site are not close enough to these resource areas to require a permit.
Closer than 300 feet to off-site water supply wells or water supply springs	The waste handling area is not closer than 300 feet to off-site water supply wells or springs per Figure 2-1.
Closer than 100 feet to public roads and property boundaries	The waste handling area is not closer than 100 feet to public roads and property boundaries. The FEL3 design shall comply with this to ensure that the waste handling area as shown in Figure 2-1 is no

	closer than 100 ft from the property line or cul-de-sac.
Closer than 10,000 feet to any airport runway used by turbojet aircraft, or within 5,000 feet of any airport runway used by only piston-type aircraft, when putrescible waste is to be handled outdoors in an uncovered or exposed condition	Although an airport is located ~4000 feet to the south, all biosolids will be stored indoors and/or processed under negative pressure and will have no feasible effect on airport operations.
Closer than 500 feet to residences in existence at the time the application is filed, other than residences owned by the facility owner or operator	The nearest residence is over 1500 feet from the waste handling area per Figure 2-1.

## 2.10 Site Plan

*A detailed plan of the area within 500 feet of the waste handling area, at a scale of 1 inch = 100 feet or a larger engineering scale and prepared by a qualified professional. This plan must clearly show, if applicable: all structures; protected natural resources; roads; property boundaries; receiving, processing, curing and storage areas; residences; erosion and sedimentation control features; odor control structures; water supply wells and springs; water quality monitoring points; and barriers or fencing and gates to prevent unauthorized persons access to the site. For facilities involving outdoor handling of putrescible wastes in an uncovered or exposed condition, this plan must also note the direction and distance of airports within 10,000 feet of the waste and waste handling area.*

A set of detailed site plans as indicated above is provided in *Attachment J*. A stormwater plan has been prepared and is provided in *Attachment P*, including erosion and sedimentation control features for construction and operational phases (See Section 8 below). *Figure 2-1* shows that there are no water supply wells or springs within 500 ft of the waste handling area. Odor control structures will include the receiving building to contain odors, the Thermal Oxidizer and its fresh air makeup from the receiving building to collect, capture and destroy odors before they are exhausted out the stack (Odor Dispersion Modeling is provided in Section 7). There will also be a backup carbon adsorption system if the Thermal Oxidizer is offline. Water quality monitoring of the industrial wastewater discharge will be accomplished at the manhole where the discharge enters the existing sewer system in the roadway. Fencing will be provided around the facility driveway and a gate will be provided at the entrance. The facility will not handle putrescible wastes outdoors.

## 2.11 Plan Views of Structures and Utilities

*A large-scale construction plan view drawing, with a minimum engineering scale of 1 inch = 40 feet, clearly showing any building(s) with foundations; processing unit(s); utilities;*

*leachate, storm water, and erosion and sedimentation control details; and, if applicable, odor control systems.*

A plan view as indicated above is included as *Attachment I*.

## **2.12 Subsurface Investigation Information**

*Whenever the proposed processing facility includes the use of in-situ soils as any part of a soil base pad for handling solid wastes, including structures requiring foundations, or includes subsurface wastewater holding or disposal systems, the application must include information from a subsurface investigation. The subsurface investigation must provide soil test data in the proposed handling areas from a certified professional describing the surficial geology and/or the subsurface soils. This information must demonstrate that the facility design is compatible with the site's soil characteristics and will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur, as determined by applicable engineering standards of practice.*

A subsurface investigation was conducted by Crede Associates, LLC, demonstrating that the facility design is compatible with the site's soil characteristics. The results are included in *Attachment K*.

## **2.13 Aquifer Map**

*Submit a copy of the most recent Maine Geological Survey Significant Aquifer Map or Sand and Gravel Aquifer Map with the facility site and the waste handling area clearly delineated.*

An aquifer map as indicated above is included as *Attachment L* with the site boundary outlined in yellow.

## **2.14 Residuals and Waste Derived Product Distribution Plan**

*Where residuals are proposed for agronomic utilization, the applicant must also submit the application information required for licensing under Chapter 419. Where waste derived products are proposed for other beneficial uses, the applicant must also submit the application information required for licensing under Chapter 418. The applicant must describe the disposition of other materials generated at the facility that are not covered under a beneficial use or agronomic utilization program. The Department may require financial assurance in the form of a letter of credit, escrow account, or other approved financial security to finance the cost of potential remediation or disposal of waste or secondary products.*

Per the facility's pre-application discussions with Maine DEP, a Beneficial Use Determination (BUD) will be obtained for the biochar when possible once the facility commences operation, allowing the facility to market the biochar for sale (e.g., use in

concrete). In the meantime, the biochar will be sent to a landfill in accordance with Maine DEP waste regulations. The BUD Application will be a separate submittal and is not included in this Application.

Routine industrial wastes generated by the facility consist of:

- Biochar (ash) generated by gasification of the wastewater biosolids consists of minerals and carbon. This will be either sent to a landfill or marketed in accordance with a Beneficial Use Determination (BUD) as noted above.
- Spent sorbent material which is no longer usable in the facility's air emissions control system consists primarily of calcium sulfate and calcium hydroxide.

Non-routine industrial wastes (hypothetically generated from events such as unplanned facility shutdowns) include:

- Bypass waste; i.e., biosolids that were accepted but cannot be processed on site for any reason.
- Unused aqueous ammonia intended for consumption in the facility's air emissions control system.
- Unused raw sorbent intended for consumption in the facility's air emissions control system.
- Unused raw sand intended for consumption in the facility's gasifier.

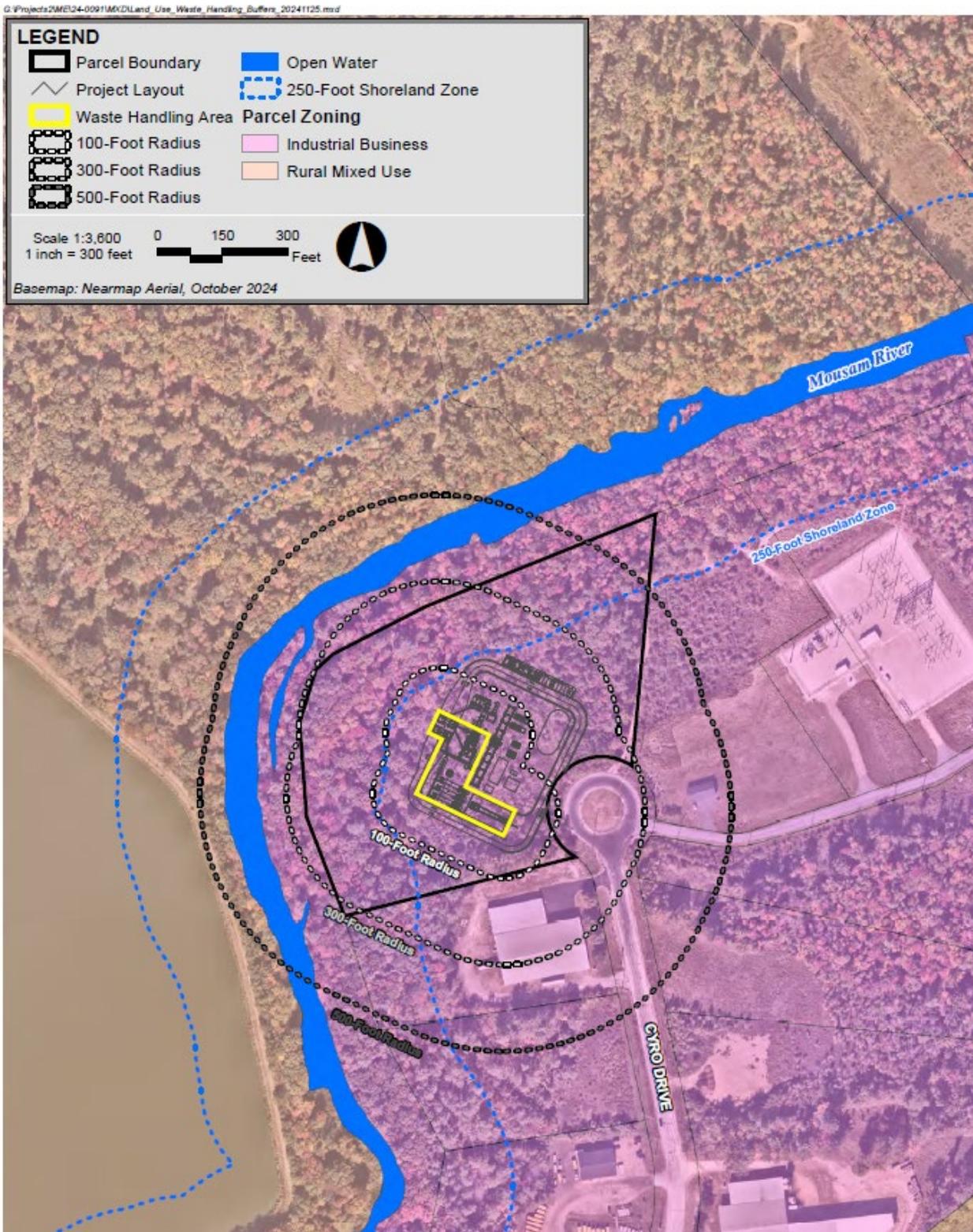
The facility will maintain contract(s) with one or more solid waste facilities to accept biochar and spent sorbent, by the time of commencement of operation. See *Attachment Q* for a letter of intent with Casella.

## **2.15 Operations Manual**

*Submit an operations manual, suitable for use by the facility, which includes at a minimum all information that would enable supervisory and operating personnel and persons evaluating the operation of the facility to determine what sequence of operation, plans, diagrams, policies, procedures, and legal requirements are to be followed for orderly and successful operation on a daily and yearly basis. The operations manual must address all the applicable requirements specified in Chapter 409, section 4. Variances from operational requirements may be requested pursuant to Chapter 400, Section 13 of the Solid Waste Management Rules.*

An Operations Manual as indicated above is included as *Attachment O*.

**Figure 2-1 Simplified Site Plan**



### 3.0 PROCESS AND FACILITY INFORMATION

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*Please submit a general description of the facility's waste processing system. This must include, if applicable, process flow diagram(s), the source, volume, and characteristics of wastes to be received, the products and wastes to be generated; the methods to be utilized to mix, process and store wastes and products; the processing equipment to be used on site; provisions for characterization, including analytical information demonstrating that the incoming wastes meet the classification proposed to be handled at the facility; an identification of applicable standards for the product that the facility will produce, including, when applicable, an identification of waste derived product standards from Chapter 418, and/or residual standards from Chapter 419, or other applicable standards from these rules, and a description of how these standards will be met.*

#### 3.1 Introduction

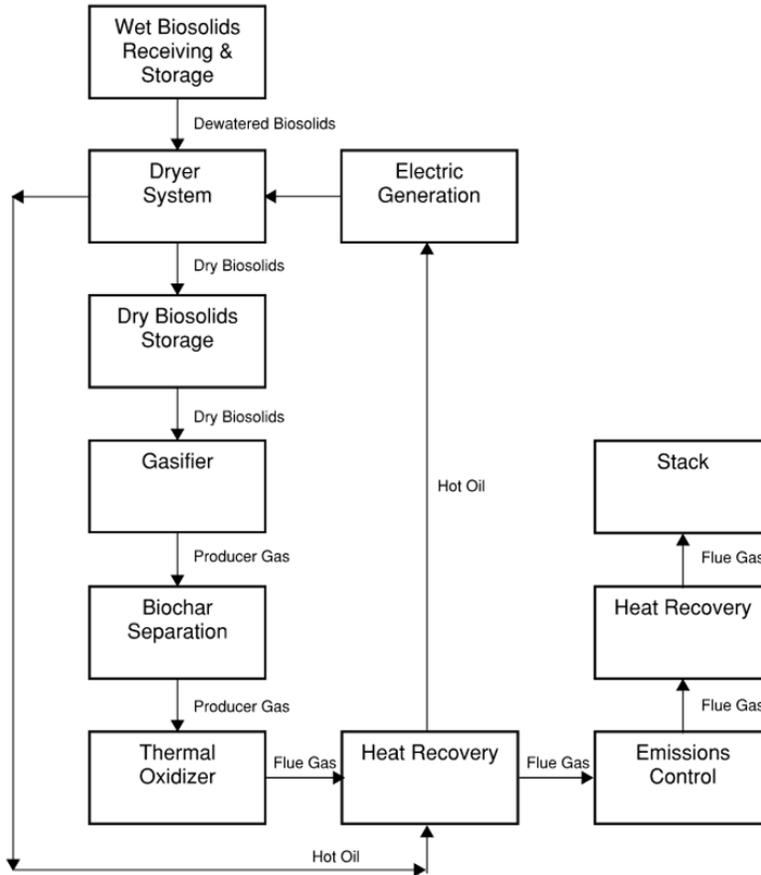
This section provides an overview of Aries Pine Tree LLC and compliance with the Design Standards of Section 409.2.B, and the process information required above. The proposed facility will receive biosolids in cake form and proceed to dry the biosolids in indirect dryers, reducing the water content to 5-10% for further processing. The plant will process dewatered domestic wastewater treatment wet biosolids that vary in moisture content from 70 to 84% with a design point of 78% moisture. The facility consists of wet biosolids receiving and storage, dryers, an Aries Clean Technologies proprietary Fluidized Bed Gasifier, cyclones, thermal oxidizer, heat recovery system, emissions control equipment, solids handling and power production area. The dried biosolids are converted in an Aries fluidized bed gasifier to make producer gas that provides heat for drying and renewable power. A simplified process block flow diagram is provided below as Figure 3-1.

Air produced during the drying process is combined with the producer gas stream where it is treated prior to release to the environment. A fully enclosed receiving building under negative air pressure will capture any odor and send it to the thermal oxidizer or backup carbon adsorption system when the thermal oxidizer is not available. Condensate from the dryer will be treated as needed to comply with the facility's industrial pretreatment permit with the local POTW where it will be discharged.

The gasifier produces a biochar that can be sold as a concrete additive and other beneficial uses. The biochar will be stored in a silo and conveyed to a bulk truck for transport offsite to the buyer(s). Hydrated lime will be used as an acid gas sorbent to neutralize SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, HF, and HCl from sulfur, fluoride and chlorides in the biosolids prior to the ceramic filter used for particulate matter control. The spent hydrated lime and mineral carryover will be stored in a silo and then trucked offsite for proper disposal.

A process flow diagram is included as *Attachment M*.

**Figure 3-1 Simplified Process Block Flow Diagram**



### 3.2 Biosolids Characteristics

The feed for the plant will be dewatered primary and secondary biosolids from municipal wastewater treatment plants with 16 to 30% solids content and an expected average content of 22% solids.

### 3.3 Design Details

The facility design basis parameters are detailed in Table 3-1 below.

**Table 3-1 Design Data**

Parameter	Value	Notes
Waste Processed	Dewatered Municipal Biosolids Cake	Undigested and Digested
Inbound Water Content	70-84% moisture	78% design average
Hours of Process Operation	24 hrs/day, 7 days per week	
Hours of Receiving/Solids Out	6 am to 6 pm, 6 days per week	Monday through Saturday, but available 24x7.
Wet Biosolids Storage Capacity	3 silos, each 300 tons	2 days of capacity
Daily Dryer Throughput	450 wet tpd (3 dryers @ 150 tpd each)	
Dried Biosolids Storage	100 tons	1 day capacity
Gasifier/startup burner	108 tpd of dried biosolids	Natural Gas Fired gasifier startup heater
Biochar Production/ Loadout Silo	15-30 tpd / 100 ton silo	Production rate varies with feedstock
Fresh Sorbent Bin	1	~4000 ft <sup>3</sup> (4 days capacity)
Spent Sorbent Bin	1	100 tons (4 days capacity)
Condensate Holding	1	14,000 gal
Aqueous Ammonia Storage (19% concentration - below OSHA "PSM" and EPA "RMP" applicability thresholds)	~10,000 gallons (allowing delivery of bulk 6,000 gallons)	19% aqueous ammonia in double wall tank or single wall with dike for spill prevention or containment

### 3.4 Delivery

Dewatered biosolids cake will arrive in sealed back dump truck trailers. The trucks are unloaded (dumped) into a receiving trough with an articulating cover, located in a totally enclosed building under negative air pressure. The receiving trough is located at the far end of the building (away from the two bay doors). The trough covers are typically only opened for the duration that it takes to unload a truck, i.e., estimated to be 15 to 20 minutes each hour. Once the truck is unloaded, the receiving trough covers are immediately closed, and the odors are contained. The bay doors will be normally opened only for truck arrival and

departure. The trucks will back up into the receiving building and after testing for moisture content and confirming the absence of foreign objects, the trucks will be unloaded. The building shall be designed to accommodate unloading two trucks at a time.

Vents from the bins and the process are routed to and discharge into the thermal oxidizer, mixed with the flue gas, and treated through combustion or by a carbon odor filter. Odors will only be present in the immediate area of the receiving bins located in the enclosed below grade vault. The totally enclosed receiving building under negative air pressure should not allow odors to escape the building, except for minor amounts as discussed in the Odor Study.

### **3.5 Transfer and Storage**

The live bottom floor in the biosolids receiving bins will feed shaftless screw conveyors that lift and distribute the wet biosolids to three rectangular above ground storage tanks. Equipment will include troughs and conveyances (with redundant conveyors and distributors), nitrogen blanketed storage tanks with live bottoms, and discharge chutes with electrically operated slide gates. The storage tanks are completely enclosed covered vessels with sealed connections for receiving incoming wet biosolids cake, a nitrogen purge line, a vent line, and a sealed bottom. Negative air pressure is created to capture odors and nitrogen used as a sweep gas to displace air (oxygen) and to prevent build-up of gases. The odors, displaced gases, and nitrogen are vented to the thermal oxidizer or to the carbon adsorption system.

The dewatered biosolids storage tanks will be rectangular silos and include live bottoms with an extraction screw, that discharges into the intake of progressive cavity pumps that convey the wet biosolids horizontally into each hollow flight dryer. The bottom area of the tanks shall be skirted. Negative air pressure in the headspace or other provisions will be incorporated to capture odors and any potential buildup of flammable gases from the storage tanks and vent them to the thermal oxidizer or to the carbon odor filter if the thermal oxidizer is out of service. Throughout the day, wet biosolids cake is transferred from the storage tanks via pumps and enclosed pipe into the hollow flight dryers.

### **3.6 Drying**

Three indirectly heated dryers such as BCR Solid Solutions' ([bcrinc.com](http://bcrinc.com)) Bio-Scru or equal will be used, each capable of drying 150 TPD of wet biosolids at 22% moisture. These will produce approximately 108 tons per day of dry biosolids at 5-15% moisture. The dryers can receive and dry wet biosolids from 16% solids to 30% solids which is the typical range supplied by wastewater treatment plants.

The dryers are heated with hot oil at approximately 480° F. This oil is generated from gasifier's producer gas that is combusted in the thermal oxidizer. During startup, the thermal oxidizer can generate heat with natural gas to heat the dryers prior to the gasifier startup.

The dryers operate at a slight vacuum resulting in a mixture of slightly superheated steam and non-condensable gas flow that is extracted from the dryer and enters a 3-stage spray water condenser. The steam is condensed, and the non-condensable gases are extracted with a vacuum exhauster which sends the non-condensable gases to either the thermal oxidizer for destruction or through a carbon filter.

Dried biosolids are combustible just like sugar, flour and many other natural products. While incidents are exceedingly rare with indirect dryers, the system must be treated with appropriate precautions to ensure that deflagrations and fires are avoided. The dryers will be equipped with oxygen monitors, nitrogen purge, and water deluge capability to ensure that there are no events that cannot be controlled without injury to personnel or damage to equipment.

The dried biosolids exit the dryer, are cooled to approximately 120°F in a cooled screw conveyor, and are pneumatically conveyed to the dry biosolids storage. Dried biosolids in the storage tanks are conveyed to the gasifier via screw conveyor. Additionally, dried biosolids may be loaded onto trucks for off-site disposal. While this capability exists, the intent is to dispose of as little dried biosolids as possible.

### **3.7 Gasification**

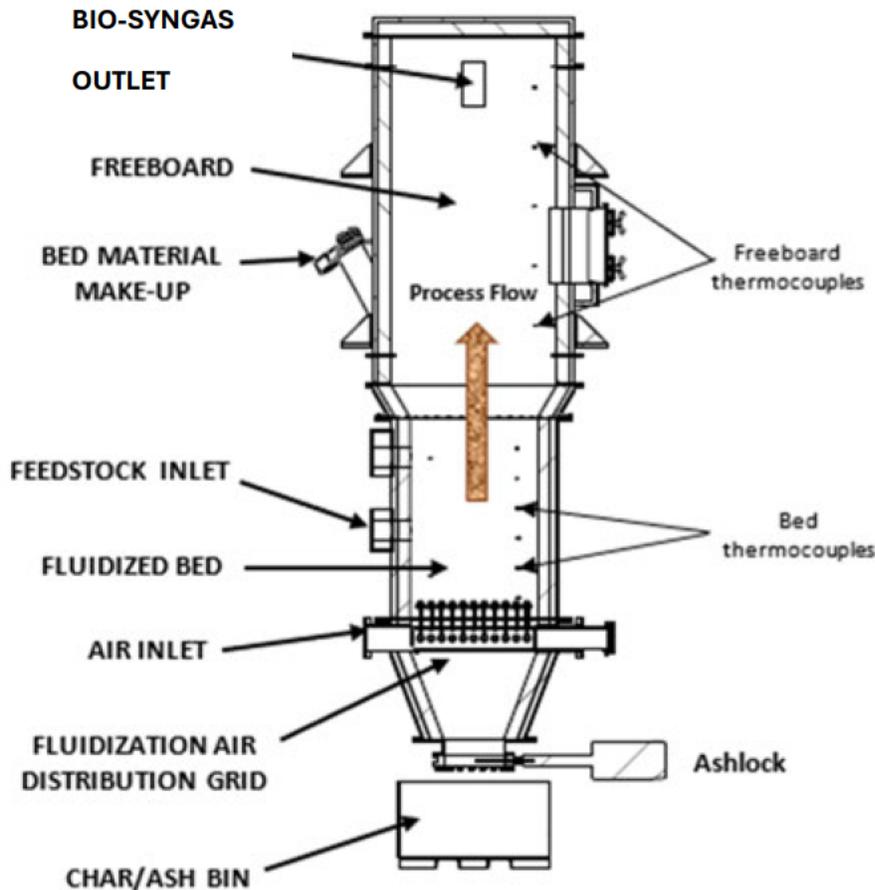
The Gasifier is a proprietary Aries fluidized bed design that converts the dried biosolids into a producer gas in an oxygen-starved environment without combustion flame. The fluidized bed temperature is controlled between 1,200°F and 1350°F by adjustment of the biosolids to air ratio and operates with an outlet pressure of ~ -1 inch water column. The resulting producer gas is primarily composed of N<sub>2</sub>, H<sub>2</sub>, CO, CH<sub>4</sub> and CO<sub>2</sub>. The gasifier process typically does not require supplemental energy other than during startup.

The effluent gas from the Gasifier carries solids to separation equipment to split it into a stream of producer gas and a stream of biochar powder consisting of 10-30% carbon with the remainder made up of minerals. The biochar is cooled and conveyed to the Biochar Loadout Silo. The producer gas has a higher heating value (HHV) of 100-150 btu/scf and flows to the thermal oxidizer where it is combusted to heat hot oil used as the heat source in the dryers.

The Sand Tank and Startup Burner are other pieces of gasifier support equipment. The Sand Tank is filled via pneumatic conveying from trucks and uses gravity to feed sand to the

gasifier. This sand makes up the fluidized bed prior to starting the gasifier and will periodically use additional sand as it is carried out of the gasifier over time. The Startup Burner provides heat to the Gasifier for startup to raise the temperature to 1000 °F. The burner has a maximum outlet temperature of 1400°F.

**Figure 3-2 Aries Fluidized Bed Gasifier**



The key variables that affect the efficiency of gasifier operation include feedstock properties (particle size, moisture content, ash fusion temperatures, etc.), design of the feeding system, and fluidization parameters (fuel-to-air ratio, fluidization velocity, inert bed material, etc.).

The temperature is maintained at approximately 1250°F to minimize potential clinker (stony residue) or agglomeration formation by alkali material in the biosolids. Biosolids typically contain constituents which can lead to the formation of eutectics (low melting point mixtures) in the bed. Fluidized bed gasification has certain advantages when processing this type of material. These advantages include a well-mixed bed with a uniform

temperature and the capability to control the bed temperature to a level that is less than the melting point of the potential eutectics which is about 1350°F.

In the gasification unit, the dried biosolids are converted to a low heating value producer gas and biochar. The main constituents of the producer gas are H<sub>2</sub>, CO, CH<sub>4</sub>, carbon dioxide (CO<sub>2</sub>), and nitrogen (N<sub>2</sub>), with trace amounts of other hydrocarbons, tars, and particulate matter.

The producer gas flows to the thermal oxidizer where it is combusted to produce the required heat source to heat the hot oil for the dryers via heat exchanger. Before reaching the thermal oxidizer, the producer gas is filtered to remove a portion of the particulate matter (PM) using a cyclone separator combined with a ceramic filter and dry sorbent (calcium hydroxide) injection. Either fresh sorbent or recycled sorbent (previously used in a ceramic filter on site) may be used. This system has a PM removal efficiency of >99%.

### **3.8 Thermal Recovery and Emissions Control**

The project will use a direct fired thermal oxidizer. The thermal oxidizer is a refractory lined steel cylinder which receives producer gas from the Gasifier mixed with small amounts from the dryer and vessel vents in the plant. In addition to producer gas, the thermal oxidizer can operate on natural gas and can co-fire both gases. The thermal oxidizer operation allows proper mixing of the gases and sufficient residence time and temperature to destroy volatile organic compounds (VOCs), CO, PFAS, odors, and many other undesirable compounds.

The heat from the oxidized gases is used in the heat recovery exchangers to heat oil for the dryers while also cooling the exhaust gas prior to it entering the emissions control unit. The flue gases are contained and exhausted to the stack assisted by an induced draft.

Combustion air is added to the thermal oxidizer with a fan. An oxygen sensor is used to ensure that sufficient air is being added in the thermal oxidizer to facilitate control to complete combustion. Temperature sensors are mounted at the end of the thermal oxidizer to control temperature between 1800 °F and 2200 °F.

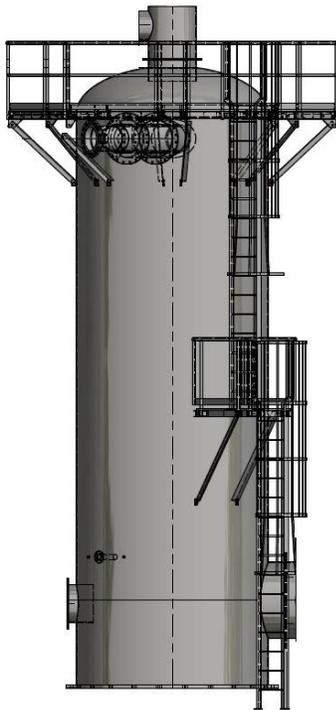
The heat recovery system uses the thermal oxidizer flue gas in a heat exchanger to raise the temperature of heat transfer fluid in a closed loop for the dryers and for the Organic Rankine Cycle (ORC) power generator. This exchanger also reduces the temperature of the flue gas to ensure proper operation of the emissions control system. A fin fan cooler is included to reject excess heat in the thermal oil for upset conditions to ensure proper operation of the emissions control system.

The air emissions control system will reduce the NO<sub>x</sub>, SO<sub>x</sub>, hydrogen chloride (HCl), hydrogen fluoride (HF), and particulate emissions. The system consists of an enclosed Selective Catalytic Reduction (SCR) system (aqueous ammonia injection to catalyst), ceramic filter, and dry sorbent injection (DSI).

Downstream of the emission control system, additional heat is recovered and the flue gas flows to an induced draft fan which discharges to the exhaust stack. The stack is designed for proper dispersion of the exhaust gases into the air.

**Figure 3-3 Aries Thermal Oxidizer**

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### **3.9 Loading and Transport of Biosolids and Biochar**

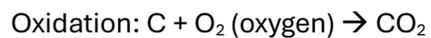
The dried biosolids silos are cooled and conveyed to storage with a 1-day capacity of nominally 100 tons. These tanks are purged with nitrogen to reduce the risk of self-heating which can lead to ignition of the biosolids. Self-heating is a process where biosolids slowly react with air at low temperatures and release heat. This heat increases the temperature of the biosolids and accelerates the reactions until smoldering or even fire occurs. These reactions are very slow and take many hours or days to produce meaningful heat if exposed to air. In addition to eliminating air by purging with nitrogen, the vessels have temperature sensors and alarms to indicate the need for additional nitrogen or water to cool the material and stop the self-heating long before there is a risk of fire.

The solid material left after gasification is referred to as Biochar and is made up of carbon and inert minerals. This material is inert and does not ignite. Biochar is removed from the producer gas with a high temperature filter and optionally a cyclone. The hot biochar is cooled from 1,200°F to 140 °F using a dry bulk heat exchanger similar to those manufactured by Solex™ Thermal Science (solexthermal.com) or cooling screw equivalent, as it is conveyed to the 100-ton capacity biochar loadout silo. The selection of the cooling technology would be determined by the EPC Contractor based on safety, reliability, and cost effectiveness. However, both designs are very safe and have been used industrially for many decades. Dry bulk trucks and/or super-sacks would be filled from the storage tank and include dust collection systems to minimize fugitive emissions.

### **3.10 Differences between Gasification and Incineration**

The key chemical difference between gasification and incineration is that gasification occurs in an oxygen-starved environment. No flame is applied to the biosolids in the gasifier, nor is a flame propagated as a result of the heating.

As the molecules in the biosolids break down due to the high temperatures, the main gasification reactions occurring are as follows:



In contrast, incineration converts carbonaceous material to carbon dioxide exclusively using oxidation in the presence of excess oxygen and a flame.

*Attachment R* contains determination letters from EPA confirming that gasification is not incineration and noting that an incinerator is “an enclosed device or devices using controlled flame combustion” to burn the material, and notes that no flame is present in the gasifier.

### **3.11 Renewable Power**

Renewable electricity will be generated using an Organic Rankine Cycle (ORC) package. This system uses hot oil heated from the thermal oxidizer flue gas to operate a Rankine cycle system. In this cycle, an organic fluid is heated and passes through a turbine. The turbine rotates an electric generator to make electricity. Once the fluid exits the turbine, it

is fully condensed and returns to be heated again in a closed-loop system, similar to what is done in an air conditioning unit.

The ORC shall be a Turboden (or equal) package unit sized for approximately 960 KW gross generation. The system is a self-contained unit with all controls and equipment included to provide 3-phase, 480 volt, 60 hz power to the internal plant power system. All ORC generated power will be internally consumed; the plant is not intended to export power to the grid. In addition to connecting the unit to the facilities electric system, hot oil, and cooling are also provided to the unit.

### **3.12 Utilities**

#### **3.12.1 Potable Water**

Potable water will be supplied through a tie-in from an existing Sanford Water District system located adjacent to the Facility which provides water to Sanford and the surrounding areas. Since the water already meets drinking-water quality standards, no additional treatment or filtration is required, ensuring a dependable supply for the facility's needs.

Potable water is primarily used for safety showers, eye-wash stations, and sanitary purposes. Uses of potable water as process water are non-routine and for maintenance and wash-down activities. The water supply is essential for the facility's operations.

#### **3.12.2 Sewage Disposal**

A sewer line is located adjacent to the plant site. Depending on the wastewater discharge volume, an upgrade to the lift station may be necessary. At a minimum, the facility will require flow measurement, pH monitoring, and a Biological Oxygen Demand (BOD) sampling station. The expected normal discharge from the process is approximately 60 gallons per minute of condensate when operating, which results from the extraction of moisture from the incoming biosolids. The sewer utility provider is the Sanford Sewerage District, and a sewer connection, along with an industrial pretreatment permit, will be obtained to support the facility.

#### **3.12.3 Fire Water**

Fire water is provided by the local water utility from a 6" fire water line adjacent to the plant fence line. There is no requirement for on-site installation of a fire water storage tank or fire pumps. Occupied buildings will require deluge fire protection systems, and a properly designed system of hydrants and fire cannons will be provided if required by the State Fire Marshal.

### **3.12.4 Electric Service**

Central Maine Power (CMP) is the electric utility provider with a distribution feeder running close to the facility. Transformer(s) will be required to stepdown the utility-provided medium voltage to 480 volt power supply used throughout the facility. Either one or two transformers with a secondary voltage of 480V will supply the motor control centers and other loads in the facility.

An electric generator will be incorporated into the facility's 480 V bus. The generator and turbine driving it will be part of the Organic Rankine Cycle (ORC) package. The ORC generator can produce approximately 960 KW at 480 V / 60 HZ. Coordination with the utility will be required and this generator will provide approximately 50% of the plant power needs. The on-site power generation is not sufficient to export power, nor can it produce power if the plant is out of service. Provisions shall be provided according to the utility requirements for protective control.

### **3.12.5 Nitrogen Supply**

Nitrogen supply is required for purging of vessels that potentially contain flammable dust or vapors and other equipment in accordance with NFPA requirements. Nitrogen will be generated using a commercially available generator at nominally 50 psig and 97% purity utilizing PSA or membrane technology with a liquid nitrogen backup. The liquid nitrogen system will include an area for truck unloading, a passive ambient vaporizer, and liquid will be supplied by a third party on an as-needed basis.

### **3.12.6 Cooling Water**

Cooling water would be used to reject heat from the process for biochar cooling, dried biosolids cooling, and ORC electric generation. This is a water/glycol mixture that is circulated to the users to absorb heat and is cooled via air-cooled heat exchangers.

### **3.12.7 Natural Gas**

Natural Gas will be provided by the local natural gas provider Unitil at a pressure of 30 psig and ambient temperature. It would be used during the startup of the plant, to operate dryers without the gasifier operating, or when the moisture of the incoming wet biosolids is on the high end of the allowable range.

Users of natural gas are the Gasifier startup heater, Thermal Oxidizer, and the Admin Building for space heating.

### 3.12.8 Plant Drains

Indoor areas would have floor drains leading to the Process Water Sump. Water would be collected in this sump and drained to the municipal sewer in a batchwise fashion after confirming it meets the required specifications. In the event it does not meet the specifications, it can be treated or removed and disposed of off-site.

Outdoor areas with the potential for receiving process water leaks would be curbed to contain rainwater and potential leaks from the process. These curbed areas would have drain valves that are kept closed and only opened to drain storm water after first inspecting and testing the water for compliance. This water can also be pumped to the Process Water Sump for treatment or removal in the unlikely event of contamination.

### 3.12.9 Stormwater

Storm water from areas not specified above will be sent to a separate storm drainage and is further discussed in Section 8.

### 3.12.10 Industrial Wastewater

The plant will produce the following waste streams:

- Process and contaminated water generated at the site is collected and treated in the facility prior to discharge to the municipal sewer system.
- Sanitary wastewater is sent to a municipal sewer line running at the edge of the site.

The following limits are specified by the Sanford Sewerage District:

**Table 3-2 Industrial Wastewater Discharge Limits**

Parameter	Maximum Concentration (mg/L)	Sample Type
Arsenic (Total)	0.008	24 Hr. Composite
Aluminum (Total)	2.19	24 Hr. Composite
Cadmium (Total)	0.001	24 Hr. Composite
Chromium (Total)	0.613	24 Hr. Composite
Copper (Total)	0.318	24 Hr. Composite
Mercury (Total)	0.08	24 Hr. Composite
Nickel (Total)	0.238	24 Hr. Composite
Selenium (Total)	0.055	24 Hr. Composite

Silver (Total)	0.002	24 Hr. Composite
Ammonia Nitrogen	34.8	24 Hr. Composite
Phosphorus (Total)	8.97	24 Hr. Composite
Cyanide	0.110	Grab
Zinc	0.255	24 Hr. Composite
Lead	0.0025	24 Hr. Composite
BOD	300	24 Hr. Composite
TSS	420	24 Hr. Composite
pH	6.0 - 12.0	Grab

### **3.13 Chemicals Required**

#### **3.13.1 Emission Control System**

Hydrated lime sorbent (Sorbacal SP) and 19% aqueous ammonia are delivered to site via truck and stored on site. These chemicals are used in the emissions control system to remove NO<sub>x</sub>, SO<sub>x</sub>, and other acidic gases that are present in the flue gas after the thermal oxidizer.

#### **3.14 Dryer-Condensate & Spray water**

The biosolids drying process results in approximately 60 gpm of water being removed from the biosolids. This water plus a small amount of solids are cooled and recycled to operate the direct contact condensers on the dryers. The excess water will be discharged to the Sanford Sewerage District in accordance with an industrial water permit.

## 4.0 ENVIRONMENTAL MONITORING PLAN

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*A processing facility may be required to submit an environmental monitoring program for review and approval by the Department if the Department determines that the facility may pose a potential threat to public health or safety or to the environment because of the nature of the waste proposed to be handled and/or the location, design and operation of the facility. This plan may include a waste characterization plan. The department may make the determination that such a plan is needed as part of a pre-application meeting process or after the application has been received and initially reviewed.*

An Environmental Monitoring Plan may be required at Maine DEP's discretion if deemed necessary. It should be noted that robust environmental protection will also be separately assured by other mechanisms, including but not limited to:

- Facility design includes indoor biosolids handling and storage areas, which will inherently minimize the environmental risk of most types of spills;
- Oil storage will be regulated by a Spill Prevention, Control and Countermeasure (SPCC) Plan;
- Process water discharges will be covered by an Industrial Pretreatment Permit from the local POTW (see Section 3.12.10)
- Air quality monitoring conditions (e.g., stack testing) will be specified by Maine DEP within the facility's Air License which will be processed in parallel to this Solid Waste Processing Application.

## 5.0 TRAFFIC MOVEMENT

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*Submit information in compliance with the submission requirements of Chapter 400, section 4(D)(2) to demonstrate that the facility will meet the standards of Chapter 400, Section 4(D)(1).*

A traffic generation assessment is provided in *Attachment N*, as evidence that roads and intersections in the vicinity of the proposed solid waste facility will safely and conveniently handle the traffic attributable to the facility.

As detailed therein, the highest average traffic generation associated with the site will be 68 trip ends on weekdays (as compared to 16,340 existing trips unrelated to the facility), which is expected to have a negligible impact on existing traffic conditions and represents less than a 0.5% increase in traffic. In general, the existing roadways have no significant crash history and adequate capacity to support the additional traffic generated by the proposed development; it is therefore not expected to negatively affect public safety or the surrounding roadway network.

## 6.0 EXISTING USES AND SCENIC CHARACTER

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*Describe the existing use of the site. Also, per Chapter 400, section 4(F), applications must include evidence that affirmatively demonstrates that the proposed solid waste facility will not unreasonably adversely affect existing uses and scenic character, including the following information:*

*(a) The nature, location, design, and size of all buffers and visual screens within those buffers to be established or retained;*

The overall visual impact will be minimal and consistent with an industrial park; the perimeter of the waste handling area will be appropriately landscaped using trees as a visual buffer.

In general, the plant is located in an area specifically considered an Industrial District and at the end of the road. There are local requirements for installing vegetation (trees) along the road access areas of the site and along the side boundary areas. In the back of the site, an environmental setback / preservation area is already identified and the trees shall not be removed from this area.

*(b) A description of the existing land uses in the vicinity of the proposed solid waste facility, all airport runways within 10,000 feet of the facility; all historic sites, protected locations and established public viewing areas within 2,000 feet;*

An Auer land use map showing urban/rural classifications is provided in *Figure 6-1*. The existing land uses in the vicinity of the site includes an existing Industrial Park to the south and east with a mix of commercial and industrial uses, a river and vacant land to the north, and an existing Publicly Owned Treatment Works (POTW) to the west. There are no known historic sites, protected locations or viewing areas within 2,000 feet. There is an existing airport to the south, within 10,000 feet of the facility. A review of the National Register of Historic Places found no entries on Cyro Road, and a review of the City of Sanford's Tax Assessing Database found no buildings older than 2007 at the Facility property or the two adjacent properties.

*(c) A demonstration that the solid waste facility will comply with the noise standards in Chapter 400, section 4(F), paragraph 2, and that the applicant will make adequate provision to control noise and the sound levels from each source resulting from the routine operation of the facility at the property boundary and any protected locations within the area; and*

See Section 6.1 below.



## 6.1 Noise Standards Overview

Epsilon has conducted noise modeling to show that facility noise will not exceed the standards stated in Chapter 400, Section 4(F)(2), stated as follows:

*The following noise standards shall apply to all solid waste facilities. Protected locations shall only include those locations defined in subsection 400(1) for which the hourly sound levels from the facility will be greater than 45 dBA.*

A “Protected Location” is defined as:

(1) “[a]ny location within a parcel of land which, at the time a solid waste facility application is submitted, either contains or has local approval for the construction of a residence, residential subdivision, house of worship, academic school, college, library, hospital or nursing home;

(2) Any location within:

- (a) A state park;
- (b) A National Park;
- (c) A Historic Site;
- (d) A nature preserve owned by the Maine or National Audubon Society or the Maine Chapter of the Nature Conservancy;
- (e) The Appalachian Trail;
- (f) A National Wildlife Refuge;
- (g) A federally-designated wilderness area; or
- (h) State wilderness area designated by state statute, such as the Allagash Wilderness Waterway; or

(3) Any location within consolidated public reserve lands designated as a protected location by rule of the Bureau of Public Lands.

*State and National Parks that do not have camping areas, houses of worship, schools, libraries, and historic sites are considered protected locations only during their regular hours of operation.*

The quantitative sound level standards are as follows:

(a) *Sound Level Limits. The following hourly sound levels from routine operation of a solid waste facility must be less than or equal to;*

- (i) *75 dBA for daytime and nighttime hours at the facility property boundary;*

(ii) 60 dBA for daytime hours and 50 dBA for nighttime hours at any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial or industrial; or

(iii) 70 dBA for daytime hours and 60 dBA for nighttime hours in an area for which the zoning, or if unzoned, the existing use or use contemplated under a comprehensive plan, is predominantly commercial or industrial.

The sound from registered and inspected motor vehicles is exempt while operating on public ways, and when they enter the development to make a delivery or pickup, and when they are moving, starting, or stopping, but not when they are parked for over 60 minutes in the development. Sound from warning signals, back-up alarms, and test operations of emergency equipment are also exempt from the noise regulation.

No numerical limits on noise from industrial sources were found in the Sanford Codes.

In summary, the applicable noise limits imposed by the Solid Waste Regulations are:

**Table 6-1 Maine DEP Noise Limits**

Receiving Location	Sound Level Limit (dBA)	
	Daytime	Nighttime
Facility Property Line	75	75
Residential Property Line	60	50
Commercial or Industrial Property Line	70	60

## 6.2 Overview of Project Sound Sources and Noise Controls

The proposed Aries Pine Tree LLC facility and the majority of the associated on-site equipment are capable of operating 24 hours/day and 7 days per week. Aries Pine Tree LLC will include stationary sound sources that are either continuous or intermittent in their operations.

Aries Pine Tree LLC will have no discernable impact on traffic flow, which will operate at levels that are considered acceptable for suburban locations. Truck traffic (waste deliveries and biochar product exports) will normally take place during daylight hours, and traffic-related sounds will be of the same character and similar frequency as existing site uses and will not pass by the nearest residences to the site. Therefore, this analysis focuses on stationary source aspects of the Project.

At this stage of the Project design, key components for the facility have been selected, however some equipment selection may be refined as the design process progresses. Reference sound level data used in the sound model includes vendor data, as well as representative data from sound level measurements of a similar facility or equipment where no data are provided by the manufacturer.

### **6.2.1 Proposed Continuous Sound Sources**

The primary stationary sources of sound from Aries Pine Tree LLC include gasification equipment, process and building fans and blowers, air coolers, emissions control equipment, and a packaged Nitrogen unit. A tabular summary of the modeled mechanical equipment proposed for the Project, i.e., the primary noise-generating components, is presented in *Table 6-2* with reference sound level data and further described herein. *Figure 6-2* identifies the locations of the modeled sound sources in the Project.

#### **Main Process Sound Sources**

Sound sources associated with the process that are included in the sound model are a gasifier blower, thermal oxidizer blower, startup burner compressor, vent collection induced draft fan, receiving building ventilation fan, and an induced draft fan for stack exhaust. All equipment is proposed to be outdoors. Preliminary equipment manufacturer and/or sizing details and broadband sound level data used in the modeling are provided in *Table 6-2*.

#### **Other Exterior Sound Sources**

The Receiving Building with waste delivery loading bays will be on the southern end of the site, and the sound level model includes a single exhaust fan on the roof. The acoustic model assumed the loading bay fan has a rating of 18,600 ACFM. The nitrogen unit is located north of the Receiving Building. Preliminary equipment manufacturer and/or sizing details and broadband sound level data used in the modeling are provided in *Table 6-2*.

A 750-kW natural gas emergency generator is proposed for the Project. Periodic, routine testing will be conducted during daytime hours, and the generator will be installed with an enclosure specified to a maximum sound level of 75 dBA at 23 feet and a commercial-grade silencer on the exhaust.

### **6.2.2 Intermittent Sound Sources**

Aries Pine Tree LLC will include stationary equipment that operates and emits sound intermittently. For the SCR emissions control system and associated devices the sound modeling conservatively assumes that any intermittent sound sources associated with the emissions control equipment are producing sound continually. The Project design includes

three (3) emission control units. Epsilon performed sound level measurements of an array of 3-inch pulse valves on a similar project and these data have been used in the model. Reference sound level data of this source are provided in *Table 6-2*.

**Table 6-2 Sound Generating Equipment**

Component	Manufacturer / Model / Size	Qty.	Height (m)	Broadband Sound Power Level (dBA)	Attenuation Included
Exhaust Fan	New York Blower Company	1	1 (above roof)	96	None
Thermal Oxidizer Blower	Aerovent MHA-921	1	1.5	115	None
Tri-Mer Ceramic Filter Pulse Valves	Unknown	6	9.0	102	None
Exhaust Stack - ID Fan	Aerovent MHA-937	1	39.6 (at stack outlet)	111	None
Startup Burner Compressor	QuickPik RBS - 125	1	1.5	100	None
PSA/membrane nitrogen package	Unknown	1	3.5	88	None
Air Cooler	Unknown	6	6.1	95	None

\* Note, these are manufacturer-representative noise levels.

### 6.2.3 Noise Controls

Several significant sound sources have been selected as the low-noise option, or noise controls have been proposed to attenuate their impact. The thermal oxidizer blower will be fitted with a silencer or quieter model. The stack exhaust fan will be substituted for a quieter model, or a silencer(s) will be added. Resulting sound power levels for the attenuated equipment in the model after noise control reductions are documented in *Table 6-3*. Noise controls pertaining to the emergency generator were identified in *Section 6.2.1*. Equipment and noise controls documented in this report are based on the Project design at the time of the modeling. As the design of Project equipment progresses, specifications of mechanical equipment, and respective restrictions, e.g., air flow, may change or be refined, and less robust attenuations may be selected.

**Table 6-3 Noise Attenuation Applied**

<b>Sound Source Component</b>	<b>Attenuated Broadband Sound Power Level (dBA)</b>	<b>Assumed Attenuation</b>
Thermal Oxidizer Blower	96	Inlet Silencer (New York Blower)
Exhaust Stack - ID Fan	104	Quieter unit (HPBC Bkwd-Inclined 40k ACFM)

### 6.3 Modeling Methodology

The sound level impacts associated with Aries Pine Tree LLC were predicted using the CadnaA noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation.<sup>2</sup> The benefits of this software are a refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. The CadnaA software allows for octave band calculation of sound from multiple sources as well as computation of diffraction.

Inputs and significant parameters specified in the model are described below:

- **Site Plan:** A site arrangement drawing was used to build the sound model and position noise-generating components and site structures.
- **Modeling Locations:** Sound levels were modeled at a height of 1.5 meters (five feet) above ground level representing the ears of a typical standing observer. A total of 10 discrete points were included in the model to represent the Aries Pine Tree LLC property line, which abuts an existing commercial neighbor to the south, and the nearest residences to the southwest. A gridded set of receptors with a 10-meter spacing were used to produce sound level isopleths (lines of equal sound energy level).

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<sup>2</sup> *Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors*, International Standard ISO 9613-2:2024 (International Organization for Standardization, Geneva, Switzerland, 2024).

- **Property Parcels:** Property parcel boundaries in the modeling domain were obtained from a publicly available source from the State of Maine or the site arrangement drawing.
- **Terrain Elevation:** Elevation contours for the modeling domain were generated with a resolution of 1 meter from elevation information derived from the National Elevation Database (NED) developed by the U.S. Geological Survey and processed by the U.S. Department of Agriculture.
- **Source Sound Levels:** Broadband and octave band sound power levels for the proposed primary equipment presented in *Tables 6-2 and 6-3* were used as input to the sound model representing full load conditions.
- **Meteorological Conditions:** A temperature of 10°C (50°F) and a relative humidity of 70% was assumed in the model to minimize atmospheric attenuation in the 500 Hz and 1,000 Hz octave bands where the human ear is most sensitive. As per ISO 9613-2, the model assumed favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night, or equivalently downwind propagation.
- **Ground Attenuation:** Spectral ground absorption was calculated using a G-factor of 0.5 over land surfaces to represent a moderately reflective surface characterized by a mixture of hard and porous ground, a conservative assumption for much of the year when the ground would be covered in vegetation. Areas with a ground absorption representing "totally reflective" ground (G=0) were used to conservatively model areas of standing water and the site footprint.
- **Safety Margin:** A safety margin of 2 dBA was added to all sources in the model to account for uncertainty in the reference sound level data and in the modeling.

No additional attenuation due to tree shielding, air turbulence, or wind shadow effects was considered in the model.

Sound pressure levels due to the operation of all primary equipment operating simultaneously at full load were modeled at the sound level modeling locations. This is a conservative modeling assumption which will result in higher predicted sound levels relative to various actual part-load and/or intermittent operation of some of the continuous sources. The intermittent sources (3" pulse valves) were also conservatively included in the model. The emergency generator was excluded from the model scenario representing routine operations due to its exemption from the limits.

## 6.4 Summary of Results

Predicted A-weighted broadband sound level modeling results from the proposed, noise-controlled Project at the 10 discrete modeling receptors are presented in *Table 6-4*. As shown in the table, worst-case maximum sound levels with all primary equipment operating at full load is expected to be 32 dBA at the closest residences (R06 through R09). The modeled sound level at the commercial property to the immediate south of the Project (R04) is 56 dBA. The sound levels at the other property line receptors (R01 through R05) range from 50 to 75 dBA. The values presented in *Table 6-4* represent “Project Only” sound levels and do not include contributions from existing background sources.

*Figure 6-3* presents a sound level contour map showing predicted A-weighted  $L_{eq}$  sound level isopleths overlaid on aerial imagery. The isopleths do not include any contribution from existing background noise sources.

As shown in the table and as depicted in *Figure 6-3*, compliance with the sound limits will be achieved. Upon refinement of the site design and equipment selection, the Project will keep the overall sound levels at or below the standards in the Solid Waste Regulations. A separate modeling exercise, performed for informational purposes with all equipment running plus the emergency generator, demonstrated compliance with the same sound limits.

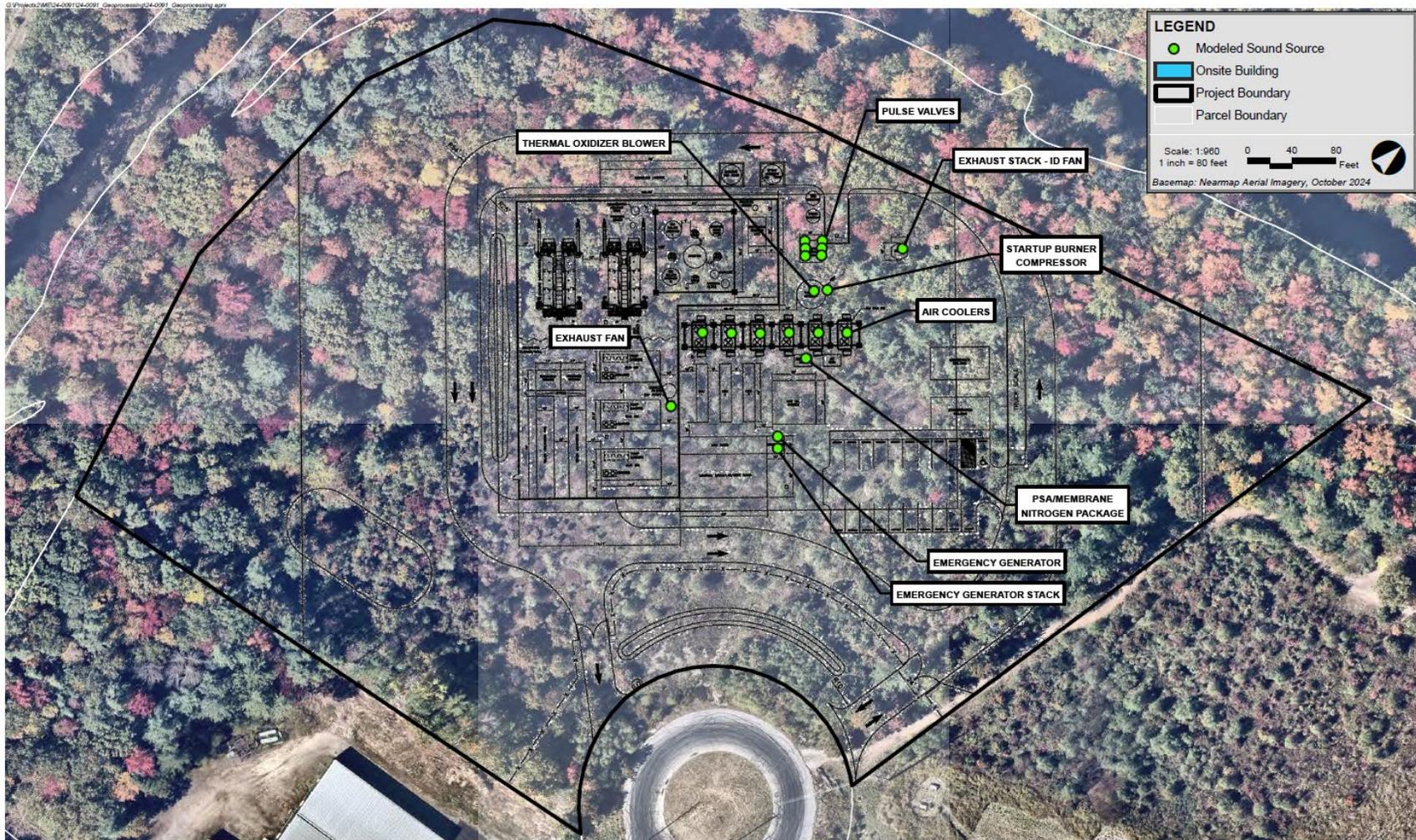
**Table 6-4 Project Only Sound Level Results and Evaluation**

Modeling Receptor	Receptor Type	Modeled Project Only Sound Level, $L_{eq}$	Sound Level Limit at Night	Evaluation
		dBA	dBA	
R01	Project Boundary – North	75	75	Complies
R02	Project Boundary – East <sup>1</sup>	63	75	Complies
R03	Project Boundary (Road)	62	75	Complies
R04	Project Boundary – South (Commercial)	56	60	Complies
R05	Project Boundary – West	50	75	Complies
R06	Residential	32	50	Complies
R07	Residential	32	50	Complies
R08	Residential	32	50	Complies
R09	Residential	32	50	Complies
R10	Industrial	48	60	Complies

Notes:

1. This property line abuts an existing substation that is largely unmanned without noise sensitive receptors.

**Figure 6-2 Modeled Sound Sources**

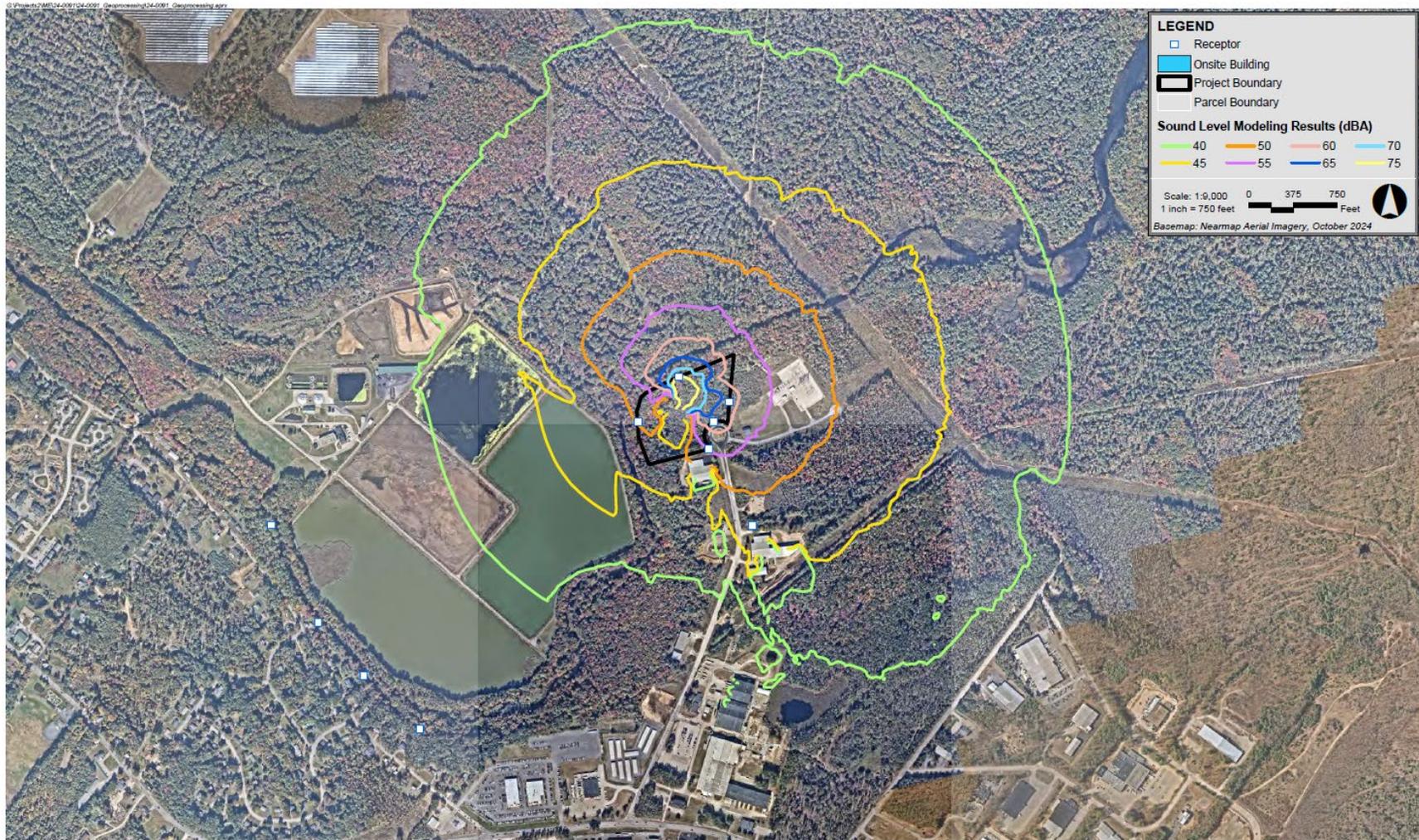


Aries Clean Technologies Sanford Project Sanford, Maine



**Figure 6-2**  
Modeled Sound Sources

Figure 6-3 Sound Level Modeling Results



Aries Clean Technologies Sanford Project Sanford, Maine



Figure 6-3  
Sound Level Modeling Results

## 7.0 AIR QUALITY

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*Provide information sufficient to meet the standards and submission requirements of Chapter 400, section 4(G). This may include a demonstration that the materials handled at the facility do not generate objectionable odors; comparative studies with similar existing facilities taking into account similarities and differences in feed stocks, composting processes, facility design, throughput, proximity to neighbors, meteorological conditions and topography; or odor dispersion modeling studies demonstrating that the facility will not cause more than a one hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any occupied buildings.*

Per the facility's preapplication meeting with Maine DEP: Aries Pine Tree LLC has completed an odor dispersion modeling study to demonstrate that the facility will not cause more than a one-hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any occupied buildings. This modeling will serve as the compliance demonstration with the listed odor standards for facilities that process wastewater treatment biosolids from publicly owned treatment works and facilities that process septage, as stated in §409.4.F.2.

Details of the completed study are as follows:

### 7.1 Odor Assessment

As stated above, odor generated by solid waste processing facilities in Maine is regulated by Ch. 409 of the Solid Waste Management Rules. The odor limit is 2 dilutions to threshold (2D/T), in any calendar year at any occupied buildings. D/T is a dimensionless ratio defined as the volume of dilution air divided by the volume of odorous air or commonly described as the number of equivalent volumes of clean air which must be added to an odorous volume such that the odor is undetectable to the average person.

### 7.2 Odor Sources

The use of a highly efficient gasification process with heat recovery and an extensive air quality control system will minimize Project odor impacts. Odors will be controlled by enclosing all odorous sources under negative pressure and controlling all process vents with a thermal oxidizer and/or a carbon adsorption system located on the roof of the receiving building. Odor sources can include the biosolids cake receiving area, wet biosolids storage vessels, and solid products (dried biosolids and biochar) vessels. The biosolids cake receiving area is ventilated under negative pressure by providing the inlet combustion air from the bulk of the receiving building air to the thermal oxidizer for destruction of odors. The balance of the receiving building exhaust will go to the carbon

system. If the thermal oxidizer is down, then all of the receiving building exhaust will go to the carbon system which will remove at least 95% of the odor.

Some low-level odors may escape from the receiving building when the roll up bay door is open, despite the negative pressure in the building as the flow rate through the doors will not be high enough to qualify as a permanent total enclosure as defined by EPA. Because the biosolids and product vessels are also vented to the thermal oxidizer for destruction of odors, the only potential source of odors is likely to be air that escapes from the receiving building. However, the odors should not be detectable by the more distant industrial park neighbors. Still, air modeling was conducted to assess the potential impact of odors from the receiving building stack and doors, and potential odors from the main stack to receptors at the property fence line and beyond the fence line.

### **7.3 Odor Modeling Emission Estimates**

Odor calculations for the biosolids receiving building assume a single door open for a total of 10 minutes each hour of the day. The odor impact inside the receiving building is assumed to be 1,500 D/T based on Epsilon review of other projects with biosolids receiving and storage including measurements made for the WM sludge dryer facility in Norridgewock, approved by Maine DEP. The odor emission rate or “odor unit per second” (OU/s), which is equivalent to a mass emission rate for odor is calculated by multiplying the odor source concentration (D/T, a dimensionless number) by the associated exhaust flow rate (cubic meters per second). For the Aries Pine Tree LLC facility, the exhaust flow rate is estimated to be 8.12 cubic meters per second and therefore the odor strength in the receiving building calculates to 12,178 odor units per second. This is similar to the WM facility in Norridgewock for a similar biosolids receiving building. It was assumed due to reduced face velocity at an open door, that 5% of the odor would escape when one door was open based on engineering experience.

Modeling was conducted using emission rates (OU/s) for each source as shown in Table 7-1.

### **7.4 Odor Modeling Methods**

Odor modeling was conducted under two scenarios. Scenario 1 included odors from three sources: a) carbon filter exhaust at 5,200 acfm, the main stack which receives 12,000 scfm from the thermal oxidizer, and from the receiving door as a fugitive emission assuming 5% of the odor is release there but factored down to a one hour average based on the amount of time the door could be open In Scenario 2, the oxidizer is down so all of the odor goes to the carbon filter at a rate of 17,200 acfm where 95% is removed, and the remaining 5% exhausts through the carbon system stack. Also, the same fugitive odor emissions from

the door as Scenario 1. Modeling was conducted using the US EPA AERMOD model (Version 24142). AERMOD is the US EPA’s preferred model for regulatory applications. The AERMOD View graphical user interface (GUI) Version 13.0.0, created by Lakes Environmental, was used to facilitate model setup and post-processing of data. Details related to the set-up for the air model, including the urban/rural analysis, meteorological data, building downwash evaluation, and terrain data used are described in the Air Modeling Protocol, submitted to ME DEP on December 11<sup>th</sup>, 2024 and approved on February 11, 2025.

To determine the worst-case odor impacts, receptors were placed along the property boundary line every 10 meters (m) and at the nearest offsite building.

Odor modeling for the receiving building assumed a single door as a volume source with length of 12 ft [initial lateral dimension (syinit) = 2.8 ft (where syinit = length of side/4.3) and initial vertical dimension (szinit) of 24.2 ft (as volume source is adjacent to a receiving area building with a height of 52 ft where szinit= building height/2.15 )]. For the facility stack, AERMOD air modeling parameters for the stack are used along with odor emissions based on the amount of flow to the thermal oxidizer from the receiving building to arrive at the offsite odor concentrations from the stack. This was done without any assumed reduction in the thermal oxidizer, which is extremely conservative as at 99% of any odorous emissions are expected to be destroyed in the thermal oxidizer or adsorbed in the sorbent on the downstream ceramic filter. The odor emission rates from the main stack, receiving building stack with carbon filter, and receiving door are shown in Tables 7-1 through 7-3.

The maximum odor impacts at the fence line from both scenarios are 0.65 D/T, well below the 2 D/T threshold on a one-hour average basis.

**Table 7-1 Odor Emission Rates for Scenario 1**

5,200	Exhaust from receiving building to carbon system (ACFM)
2.45	Exhaust from receiving building to carbon system (m3/sec)
1,500	Odor impact in receiving building, estimated dilutions/threshold (odor units/m3)
3,682	Odor emissions from receiving building to carbon system (odor units/sec.)

There is 95% odor removal in the carbon system, so  $3,682 \times 0.05 = 184$  odor units/sec. from carbon unit stack. The carbon system stack is 2.5’ diameter by 10 ft high above the receiving building roof and has an exit velocity of 17.7 fps, with a nominal temperature of 50 degrees F assumed.

For the main stack from the thermal oxidizer, for the purposes of this dispersion modeling, it is assumed there is no removal of the odor to be ultra conservative.

The main stack will exhaust 12,000 scfm from the thermal oxidizer, which is equal to 5.67 m<sup>3</sup>/sec, times 1,500 odor units/m<sup>3</sup> = 8,496 odor units/sec.

The main stack is 4' diameter x 130 feet above the ground, 62 fps at 298 F.

The fugitives from the door are shown in Table 7-3 below.

**Table 7-2 Odor Emission Rates for Scenario 2**

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In this scenario, the thermal oxidizer is down, so the carbon system receives all the odor emissions. The flow is 17,200 cfm, or 8.12 m<sup>3</sup>/sec.

This results in 12,178 odor units/sec. x 0.05 = 608.9 odor units/sec. from the carbon system stack.

The fugitives from the door are shown in Table 7-3 below.

**Table 7-3 Odor Emissions from Receiving Bay Doors**

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14	Door Height (ft.)
12	Door Width (ft.)
168	Door Area (sq. ft.)
17,200	Exhaust from receiving building to oxidizer (ACFM)
8.12	Exhaust from receiving building to oxidizer (m <sup>3</sup> /sec.)
102	Velocity through open door (fpm)
95%	Emissions remaining in building at above velocity (engineering judgment)
5%	Emissions escaping through open door
10	Typical open door time (minutes/hour) – one door open at a time; max. 5 min in and 5 min out for truck traffic
1500	Odor impact in receiving building, estimated dilutions/threshold (odor units/m <sup>3</sup> )
12,178	Odor emissions in receiving building (odor units/sec.)
0.833%	Amount of odor escaping through open door (1-hour avg.)
67.65	Odor concentration of air escaping through open door (odor units/sec.)

## 7.5 PFAS Air Dispersion Modeling for Inhalation and Groundwater Deposition

While there are no Maine DEP standards for PFAS emissions from the facility stack, Aries Pine Tree LLC is providing the results of recent stack testing from the similar Linden, NJ facility and dispersion modeling results in this application and in the Air License Application. The purpose is to show the facility will destroy or remove at least 95% of PFAS and the resulting air emissions will have negligible impacts on the environment and human health.

Municipal biosolids are known to contain Per- and polyfluoroalkyl substances (PFAS) which are a group of synthetic chemicals that are found in many products and are known as "forever chemicals." In the process of drying, gasifying and oxidizing the producer gas, these PFAS are destroyed or removed, and the remaining PFAS exit the stack and are dispersed into the ambient air, and some is also deposited on the ground by wet or dry deposition. There are no Maine DEP inhalation standards, nor any mechanism required to examine deposition impacts on groundwater.

Aries Pine Tree LLC proposes that the inhalation impacts (what a person could breathe over any 24 hour period) should be compared to the most stringent existing State standards for states that have standards, and those are found in the State of Michigan. Michigan uses a concentration called an Initial Threshold Screening Level (ITSL) for perfluorooctanoic sulfonic acid (PFOS) which is  $0.0004 \mu\text{g}/\text{m}^3$  with 24-hour averaging time<sup>3</sup>. They also have an ITSL for perfluorooctanoic acid (PFOA) which is  $0.0001 \mu\text{g}/\text{m}^3$  with 24-hour averaging time.<sup>4</sup>

For deposition impacts to groundwater, Aries Pine Tree LLC proposes to use a methodology developed by NHDES to assess the potential to cause or contribute to an exceedance of a groundwater standard. In the NHDES Air Pollution Control Statutes, 125-C:10-e Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water. – essentially requires and evaluation of whether air emissions “cause or contribute to an exceedance of an ambient groundwater quality standard or surface water quality standard as a result of the deposition of any PFAS or precursors from the air.”

In practice, based on experience with the Saint Gobain facility in Merrimack, NH, NHDES required an air quality deposition study for stack emissions and this study has been repeated for the Aries Pine Tree, LLC facility and site. The study determines whether the maximum deposition amounts would cause or contribute to an exceedance of ambient

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<sup>3</sup> [https://www.egle.state.mi.us/aps/downloads/ATSL/1763-23-1/1763-23-1\\_24hr\\_ITSL.pdf](https://www.egle.state.mi.us/aps/downloads/ATSL/1763-23-1/1763-23-1_24hr_ITSL.pdf)

<sup>4</sup> [https://www.egle.state.mi.us/aps/downloads/ATSL/335-67-1/335-67-1\\_24hr\\_ITSL.pdf](https://www.egle.state.mi.us/aps/downloads/ATSL/335-67-1/335-67-1_24hr_ITSL.pdf)

groundwater quality standards or surface water quality standards by comparing the impacts to the standards and the detection limits in the EPA method for measuring PFAS in water.

The inhalation study results are provided in Table 7-4.

The deposition study is summarized in a spreadsheet found in Table 7-5 using the same methodology as for Saint-Gobain<sup>5</sup>.

The annual emissions in this study are based on the stack tests from Linden which are provided in *Attachment S*.

These show that all PFAS impacts are predicted to be order of magnitude lower than applicable standards or detection limits.

**Table 7-4 PFAS Modeled Air Concentrations Compared to Michigan Limits**

PFAS	Actual Emission Rate (lb/hr) from stack test	Actual Emission Rate (g/s) from stack test	H1H 24-hr Max Concentration (µg/m3) per g/s	Actual Concentration (µg/m3)	Michigan 24-hr Limits in Air (µg/m3)
PFOA	4.10E-06	5.17E-07	2.72	1.41E-06	1.0E-04
PFOS	6.00E-08	7.56E-09	2.72	2.06E-08	4.0E-04

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<sup>5</sup> <https://www4.des.state.nh.us/OneStopPub/Air/330110016511222022TypeCF.pdf>

**Table 7-5 PFAS Deposition Study**

Aries Pine Tree LLC Deposition Modeling of PFOA, PFAS, etc. comparison to Lowest Concentration Minimum Reporting Limits for Lab Analysis to Demonstrate No Impact to Groundwater

From AERMOD 0.014 g/m2/yr per g/s Based on Method 1

PFC	Lowest Concentration Minimum Reporting Limits (LCMRL) for Lab Analysis (ng/L) or (ppt) or (µg/m3) [1]	Maximum Concentration of PFC (MCPFC) infiltrating to groundwater (ng/L) or (ppt) or (µg/m3) [2]	Maximum Deposition Rate (MDR <sub>PFC</sub> ) (µg/m2/yr) [3]	Maximum Annualized Emission Rate (g/s) [4]	Maximum Allowed Annualized Emission Rate (lb/hr) [5]	Maximum Allowed Annualized Emission Rate (lb/yr) [6]	Annual Emission Rate Based on Stack Tests	Annual Emission Rate Below Maximum Annualized Emission Rate?	Maine Drinking Water Standard (ppt)**	EPA Drinking Water Standard (ppt)*	Aries Sanford Max Impact (ppt)
PFOA	0.82	0.82	0.4	3.10E-05	2.46E-04	2.16	0.036	Yes	20	4	0.014
PFOS	2.7	2.7	1.4	1.02E-04	8.11E-04	7.11	0.00053	Yes	20	4	0.0002
PFHxS	2.4	2.4	1.3	9.09E-05	7.21E-04	6.32	0.00020	Yes	20	10 and HI=1	0.00008
PFNA	0.83	0.83	0.4	3.14E-05	2.49E-04	2.18	0.010	Yes	20	10 and HI=1	0.004
HFPO-DA	4.3	4.3	2.3	1.63E-04	1.29E-03	11.32	0.004	Yes	20	10	0.001
PFBS	6.3	6.3	3.3	2.39E-04	1.89E-03	16.58	0.00074	Yes	20	HI = 1	0.0003
PFHpA	0.63	0.63	0.3	2.39E-05	1.89E-04	1.66	0.019	Yes	20	None	0.007
PFDA	3.3	3.3	1.7	1.25E-04	9.91E-04	8.69	0.011	Yes	20	HI=1	0.004
										HI	0.001

[1] LCMRLs used from Table 5 from the March 2020 EPA document Method 537.1: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry ."

[2] The maximum concentration of PFC (MCPFC) infiltrating to groundwater needs to be less than the LCMRL to demonstrate no impact to groundwater.

[3] MDR<sub>PFC</sub> ((µg/m2)/yr) = MCPFC (µg/m3 or ppt) \* IR (m/yr) Precipitation Infiltration Rate (IR) (m/yr) 0.53

[4] Maximum Annualized Emission Rate (g/s) = MDR<sub>PFC</sub> ((µg/m2)/yr) / (UIR (g/m2/yr per g/s) \* 1,000,000 (µg/g))

Unit Impact Rate (UIR) (g/m2/yr per g/s) at maximum impact receptor 1.1E-06

[5] Maximum Annualized Emission Rate (lb/hr) = Maximum Annualized Emission Rate (g/s) \* 3600 s/hr \* 1 lb/453.6 g/lb

[6] Maximum Annualized Emission Rate (lb/yr) = Maximum Annualized Emission Rate (lb/hr) \* 8760 hr/yr

\* <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas#Summary> and hazard index: [https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr\\_fact-sheet\\_hazard-index\\_4.8.24.pdf](https://www.epa.gov/system/files/documents/2024-04/pfas-npdwr_fact-sheet_hazard-index_4.8.24.pdf)

\*\* <https://www.mainelegislature.org/legis/bills/getPDF.asp?paper=SP0064&item=3&snm=130> (individually or in combination)

## 8.0 STORMWATER AND EROSION AND SEDIMENTATION CONTROL

A Stormwater Management Plan for the proposed Aries Pine Tree LLC facility is included as *Attachment P*. As detailed in *Table 8-1*, this Stormwater Management Plan demonstrates compliance with Surface Water Quality and Erosion Control requirements for solid waste processing facilities.

**Table 8-1 Stormwater Management Plan Cross-Reference**

<b>Requirement - Surface Water Quality</b>	<b>Section of Attachment P</b>
The applicant will comply with all applicable stormwater management standards of 06-096 CMR 500, if the proposed facility is in the direct watershed of "waterbodies most at risk from new development"	N/A - No impacts proposed
A wastewater discharge license has been obtained or will be obtained, if required by 38 M.R.S.A. §413.	N/A - No impacts proposed
<b>Requirement - Erosion and Sedimentation Control Plan</b>	<b>Section of Attachment P</b>
A statement of whether the proposed facility or activity is in the direct watershed of waterbodies most at risk from new development. For the purposes of this submission requirement, the Department will consider the direct watershed of a waterbody to be the land area that drains, via overland flow, natural or manmade drainage systems, other waterbodies or wetlands to that waterbody	Page 4 of 73
A description and location of all proposed construction activities that may result in soil disturbance	Page 4 of 73
A description and location of all existing and proposed on-site drainage	Page 5 of 73
The timing and sequence of all proposed land disturbances	CONSTRUCTION SEQUENCE and CONSTRUCTION SCHEDULE notes, sheet SW4
A description and location of all proposed temporary and permanent erosion and sedimentation control measures, including the timing and sequence of completion and an indication of the suitability of the proposed measures to address the problems that are expected	EROSION AND SEDIMENT CONTROL PRACTICES and HOUSEKEEPING notes, sheet SW4
Calculations for erosion control measures in accordance with best management practices	Design of FILTER BERM DETAIL on sheet SW3 is per the requirements of the Maine Erosion and Sediment Control BMP Manual and is acceptable for the proposed purpose. Specific calculations for pollutant reduction and capacity of treatment BMPs are included in Appendix C, pages 52-59.

<p>A proposed program for the maintenance of all erosion and sedimentation control facilities that will remain after construction is completed</p>	<p>Appendix D, pages 75-88</p>
<p>Where applicable, the application must include a report showing that the soils are suitable to the undertaking including:  (i) Test pit and soil boring information; and  (ii) An evaluation by an engineer, soil scientist, or other qualified individual.</p>	<p>Stamped design provided as confirmation that an engineer has evaluated the test pit information. See pages 60-71 and SW plans.</p>

## 9.0 OTHER NATURAL RESOURCES

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*An application must include the following information, when appropriate:*

- (a) Evidence that a Natural Resource Protection Act application has been submitted or will be obtained when required under that Act (38 M.R.S.A. §§480-A to 480-Z); and*
- (b) Complete information as to whether a Federal Wetlands permit is required and on whether a Federal Wetlands permit application has been submitted.*

As detailed in the Stormwater Management Plan (*Attachment P*), the waste handling area is not in, on or over a protected natural resource or on land adjacent to any protected natural resources or wetland areas. The active portions of the site are not close enough to these resource areas to require a permit. Additional information is provided in Section 2 and *Attachment H*.

## 10.0 PROVISIONS FOR UTILITIES

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*An application must include evidence that affirmatively demonstrates that the applicant has made adequate provision for utilities, including water supplies, sewerage facilities and solid waste disposal, and that the proposed solid waste facility will not have an unreasonable adverse effect on existing or proposed utilities in the municipality or areas served by those utilities, including the following information, when appropriate:*

- (a) Verification that the facility will be served by the appropriate utilities;*
- (b) Evidence that a sufficient and healthful water supply will be provided; and*
- (c) The identification of all aspects of the proposed solid waste facility that require access to or use of utilities, along with the provisions that have been made to use those utilities and to comply with any requirements and provisions of the utility.*

The utility requirements and Utility service providers are identified in Section 3.12.

The City of Sanford has assured Aries Pine Tree LLC that sufficient water, sewer and wastewater treatment capacity is available at this site for the project. Furthermore, preliminary contacts have been made with Central Maine Power and they confirm that there is ample capacity available in the area and there are 2 distribution feeders at the property boundary. The Superintendent of the Sanford Sewerage District has provided an invert of the sewer manhole on the edge of the property and confirmed that there is sufficient capacity in the down gradient lift station to accept the anticipated plant discharge.

## 11.0 FLOOD HAZARDS

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*Provide information sufficient to meet the standards and submission requirements of Chapter 400, section 4(M). This must include the most recent Federal Emergency Management Agency's flood insurance rate map of the area, if applicable, with the location of the facility site clearly marked when the site is within ¼ mile of the 100 year floodplain.*

*An application must include evidence that affirmatively demonstrates that the facility will not unreasonably cause or increase flooding of the facility site or adjacent properties, will not create an unreasonable flood hazard, and will have no unreasonable effect on run-on, run-off, and/or infiltration relationships.*

The Flood Map is included as Appendix E (page 72), with the 100-year flood zone (Zone AE) shown on sheets SW1 and SW2 of *Attachment P*. All proposed work is outside of the flood zone.

Impacts to the receiving waterways are minimal, and a waiver of the flooding standards is requested and explained in the Stormwater Management Narrative (page 7) in *Attachment P*.

## **12.0 VARIANCES**

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*If a variance or variances are being requested as part of this application, specify the nature of the variance and the justification for why it should be granted. Refer to Chapter 400, Section 13 of the Solid Waste Management Rules for the standards and submissions required in this variance application.*

No variances are requested herein.

**Attachment A**

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Completed "Application for a Solid Waste Processing Facility" Form

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**Solid Waste Program, Attn: Geraldine Travers**  
**17 State House Station**  
**Augusta, Maine 04333-0017**  
**Telephone: (207) 287-2651**

<b><u>FOR DEP USE ONLY</u></b>	
ATS ID: _____ Seq.: _____ DEP ID: _____	Received by DEP: _____
Bureau: <u>S</u> Type of Application: <u>WK</u> Activity: <u>N</u>	Fees Paid: _____
Project Analyst: _____	Check No.: _____

**APPLICATION FOR A SOLID WASTE PROCESSING FACILITY**

This form shall be used to request approval for the establishment of a new solid waste processing facility, pursuant to 38 M.R.S., Section 1301 *et seq.*, and Maine's *Solid Waste Management Rules*.

PLEASE TYPE OR PRINT

**Company Name:** \_\_\_\_\_ **Telephone:** \_\_\_\_\_  
 Applicant's Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_ Telephone: \_\_\_\_\_

**Address Information**

**Applicant Name:** \_\_\_\_\_ **Agent/Consultant Name:** \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Telephone: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_ Mailing Address: \_\_\_\_\_  
 Street Address: \_\_\_\_\_ Street Address: \_\_\_\_\_  
 Town: \_\_\_\_\_ State: \_\_\_ Zip: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_ Zip: \_\_\_\_\_

**Address: Billing**  
 Name: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 Street Address: \_\_\_\_\_  
 Town: \_\_\_\_\_ State: \_\_\_ Zip: \_\_\_\_\_

**Site/Activity Information**

Project Description: Processing facility - New  
 Location: \_\_\_\_\_  
 Directions to site: \_\_\_\_\_

**PLEASE SEE PAGE 2 - SIGNATURE REQUIRED**

## SIGNATURE OF APPLICANT

By signing this application, the applicant certifies that he or she has: (1) published the public notice form once in a newspaper circulated in the area where the project is located, (2) sent a copy of the public notice form to the owners of property abutting the land upon which the project is located, (3) sent a copy of the public notice form to the chief municipal officer and chair of the municipal planning board of the municipality in which the project is located (4) filed a complete copy of this application in the municipal office of the municipality in which the project is located, (5) reviewed the instructions contained in this application form, and (6) reviewed the appropriate state laws that relate to the proposed project.

I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

DATE: 12/22/2025

NAME: *Kari Mueller*

(Applicant)

TITLE: Kari Mueller, SVP, Corporate Operations

(If other than applicant, attach letter of agent authorization.)

**PLEASE SEE ATTACHED FEE SCHEDULE TO DETERMINE THE APPLICATION FEE FOR FOR A SOLID WASTE PROCESSING FACILITY.**

Notice of Intent to File and Mailing Confirmation

## PUBLIC NOTICE OF INTENT TO FILE

Please take notice that: **Aries Pine Tree LLC**

4037 Rural Plains Circle, Suite 290, Franklin, TN 37064

[mark.lyons@ariescleantech.com](mailto:mark.lyons@ariescleantech.com)

(603) 498-6525

intends to file an application with the Maine Department of Environmental Protection (the Department) on or about January 7, 2026, pursuant to the provisions of 38 M.R.S. §§ 1301 through 1319-Y and the applicable sections of the Maine Solid Waste Management Rules, 06-096 CMR Chapters 400 through 419.

This application is for: a biosolids gasification facility, which will increase the region's biosolids disposal capacity and provide an alternative to landfilling and long-haul disposal. In brief: biosolids (sometimes referred to as sludge) from regionally located municipal wastewater treatment facilities will be accepted by truck primarily from Maine, Southern New Hampshire and Eastern Massachusetts; after being dried, the biosolids are then gasified using a proprietary fluidized bed process, which reduces the biosolids to a useful biochar (collected by truck for off-site use or disposal) and a producer gas (combusted on-site using a thermal oxidizer, which removes pollutants and produces useful heat that is recycled within the facility.)

The facility is to be located at Cyro Road Lot 4, Sanford ME 04073, a property owned and operated by Aries Pine Tree LLC.

The application and supporting documentation are available for review at the Bureau of Remediation and Waste Management (BRWM) at the appropriate Department regional office during normal working hours, and at the Office of the City Manager located at 919 Main Street, Sanford, ME 04073.

Any person, including the applicant, may request a hearing on the application. The request must be received by the Department, in writing, no later than 20 days after the application is accepted as complete for processing. The request must indicate the interest of the person filing the request and specify the reasons why a hearing is warranted.

The Department will hold a hearing in those instances where the Department determines there is credible conflicting technical information regarding a licensing criterion and it is likely that a hearing will assist the Department in understanding the evidence. Within five days after the Department's decision whether to hold a hearing, the Department will provide notice of the decision to the person who requested a hearing, the applicant, and any other affected person.

Send all correspondence to: Maine Department of Environmental Protection, Southern Maine Regional Office, 312 Canco Road #4, Portland, ME 04103, Derek DeCastro, 207-592-2879, [Derek.DeCastro@maine.gov](mailto:Derek.DeCastro@maine.gov).





# Sanford Springvale MAINE NEWS



Nonprofit newspaper produced with volunteers

Free

## Public Notices

### PUBLIC NOTICE OF INTENT TO FILE

Please take notice that:

Aries Pine Tree LLC  
4037 Rural Plains Circle, Suite 290,  
Franklin, TN 37064  
marklyons@ariescleantech.com  
(603) 498-6525

intends to file an application with the Maine Department of Environmental Protection (the Department) on or about January 7, 2026, pursuant to the provisions of 38 M.R.S. §§ 1301 through 1319-Y and the applicable sections of the Maine Solid Waste Management Rules, 06-096 CMR Chapters 400 through 419.

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Send all correspondence to: Maine Department of Environmental Protection, Southern Maine Regional Office, 312 Canco Road #4, Portland, ME 04103, Derek DeCastro, 207-592-2879, Derek.DeCastro@maine.gov.

**Attachment C**

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USGS Topographical Map

**LEGEND**

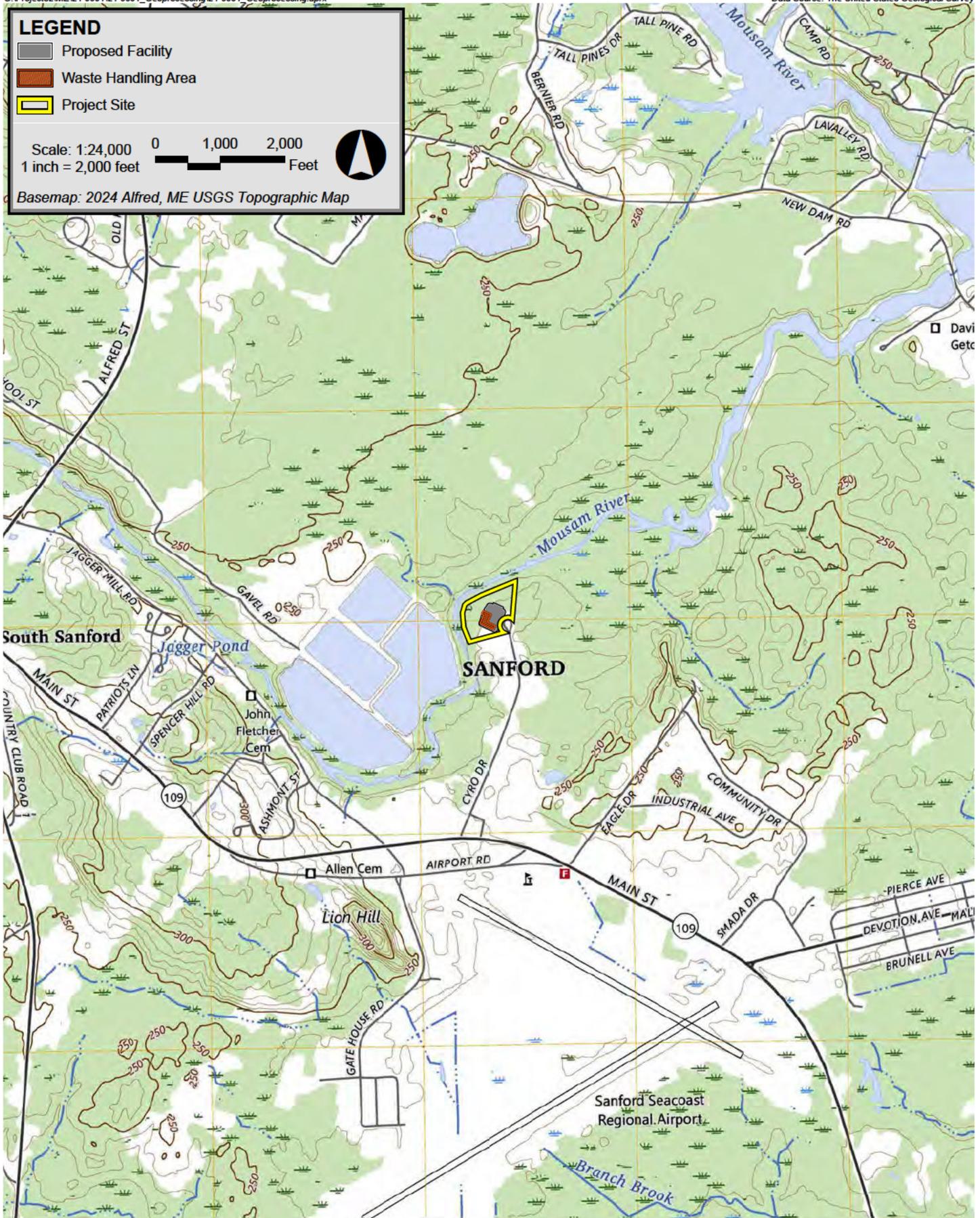
-  Proposed Facility
-  Waste Handling Area
-  Project Site

Scale: 1:24,000  
1 inch = 2,000 feet

0 1,000 2,000 Feet



Basemap: 2024 Alfred, ME USGS Topographic Map



**Biosolids Gasification Project Sanford, Maine**



**Attachment D**

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Documentation of Right to the Site

## PURCHASE AND SALE AGREEMENT

This Purchase and Sale Agreement (“Agreement”) is made and entered into as of this \_\_\_\_\_ day of \_\_\_\_\_, 2024 (the “Effective Date”), by and between **Aries Clean Technologies LLC**, a Delaware LLC with a mailing address of 4037 Rural Plains Circle, Suite 290, Franklin TN 37064 (“Buyer”) and **Industrial Development Corporation of Sanford**, a Maine non-profit corporation with a mailing address of 917 Main St, Ste D, \_\_\_\_\_ (“Seller”).  
Sanford, ME 04073

In consideration of the mutual covenants and promises hereinafter set forth, Seller and Buyer agree as follows:

1. **Property.** Seller agrees to sell and Buyer agrees to purchase, on the terms and conditions contained in this Agreement the parcel of land located at or near Lot 4 Cryo Road Extension in Sanford, York County, Maine and all improvements thereon, systems and utilities associated therewith and all rights, easements and interests appurtenant thereto (the “Property”). The Property is depicted on **Exhibit A** attached hereto and is further described in those certain deed recorded in the York County Registry of Deeds in Book 239, Page 33 and as amended in Plan Book 389, Page 50. The description of the Property as described above and on **Exhibit A** is understood to be general in nature and the description in the deed of conveyance contemplated herein shall be subject to approval by Buyer.

2. **Purchase Price.** Subject to any adjustments and prorations hereinafter described, Buyer agrees to pay for the Property **Four Hundred Thousand U.S. Dollars (\$ 400,000.00)** (the “Purchase Price”) payable as follows:

(a) **Deposit.** Within five (5) business days of the Effective Date, earnest money deposit in the sum of One Hundred Thousand Dollars (\$100,000.00) (the “Deposit”) in part payment of the purchase price is to be delivered to The Boulos Company as Escrow Agent. The Deposit shall be held in a non-interest bearing escrow account and applied against the Purchase Price at closing or otherwise distributed pursuant to the terms and conditions of this Agreement and Buyer and Seller shall simultaneously execute an escrow agreement with Escrow Agent.

(b) **Cash at Closing.** The balance of the Purchase Price, Three Hundred Thousand Dollars (\$300,000.00) is to be paid by wired funds at Closing (hereinafter defined).

3. **Title.** Seller shall convey the Property to Buyer at the Closing in fee simple with good and marketable title free and clear of all liens and mortgages, except for liens for real estate taxes not yet due and payable, covenants pertaining to the Property as described in **Exhibit B** as modified as described in Section 4 below, and Permitted Encumbrances (hereinafter defined).

Within sixty (60) days of the Effective Date (the “Title Review Period”), Buyer shall notify Seller in writing (the “Title Objection Notice”) of matters of record at the York County Registry of Deeds adversely affecting title to the Property that are objectionable to Buyer in Buyer’s sole discretion (“Unpermitted Encumbrances”). Buyer shall be deemed to have waived the right to object to any matter

affecting title as of the Effective Date, excluding any mortgage, tax lien or mechanics' lien, or judgment lien, for which no title objection is required, if Buyer fails to specifically identify such matters in the Title Objection Notice (each matter not objected to being a "Permitted Encumbrance"). Seller may, but shall have no obligation to, eliminate, modify or remove the Unpermitted Encumbrances, if any; provided, however, that Seller agrees to remove and eliminate any and all monetary liens affecting the Property before Closing. Seller shall, within thirty (30) days after receipt of Buyer's Title Objection Notice, deliver to Buyer written notice that either (i) Seller will, at Seller's expense, cure or remove each of the items to which objection has been made by Buyer before Closing, or (ii) Seller is unable or unwilling to cure or remove any one or more of said items objected to by Buyer. If Seller is unable or unwilling to eliminate, modify or remove the Unpermitted Encumbrances within said thirty (30) day period (or if Seller does not timely respond, it shall be deemed to have refused to take further action), Buyer, as Buyer's sole and exclusive remedy, shall have the right to terminate this Agreement by giving written notice of such election within fifteen (15) days thereafter. If Buyer so terminates this Agreement, Fifty Thousand Dollars (\$50,000.00) shall be returned to Buyer, Seller shall be entitled to retain the remaining Deposit, and neither party shall have any further rights, duties or obligations hereunder. If Buyer does not so terminate this Agreement, then Buyer shall be deemed to have waived Buyer's rights to object to the Unpermitted Encumbrances to which Seller has not expressly agreed to cure by written notice to Buyer (which will then become Permitted Encumbrances).

4. Inspection Contingency Period.

- (a) Within three (3) business days following the Effective Date, Seller shall deliver to Buyer copies of any and all documents in Seller's possession relating to the Property including, but not limited to, any and all licenses, occupancy agreements, permits, engineering reports, environmental reports, title policies, surveys, site plans, building plans, property tax statements for the past twelve (12) months, a copy of any notices of claims, demands, or lawsuits related to or affecting the Property that have not been finally resolved beyond any appeal periods (collectively, the "Due Diligence Documents"). Buyer is encouraged to seek information from professionals regarding any specific issue of concern. Buyer shall have a period of twenty-four months (24) months from the Effective Date (the "Inspection Contingency Period") to examine and inspect the Property and such Due Diligence Documents. Subject to the foregoing, during the Inspection Contingency Period, Seller shall allow Buyer or Buyer's agents access to the Property to conduct a non-invasive inspection of the Property as Buyer deems necessary to determine the feasibility of the Property for Buyer's intended use and Buyer shall bear all costs and expenses of its investigation. Buyer acknowledges that all inspections, of whatever kind or character, performed on the Property during the Inspection Contingency Period are Buyer's sole responsibility.
- (b) If Buyer finds the Due Diligence Documents and/or the Property unacceptable for any reason or no reason, then Buyer, at Buyer's sole discretion, shall have the right to terminate this Agreement by written notice, which notice must be received by Seller on or before the expiration of the Inspection Contingency Period. If Buyer so terminates this Agreement, Fifty Thousand Dollars (\$50,000.00) of the Deposit shall be returned to Buyer, Seller shall be entitled to retain the remaining Deposit, and thereafter neither party shall have any

further rights, duties or obligations to the other hereunder, except for the obligations which are expressly stated herein to survive the Closing or termination of this Agreement. If the Buyer does not notify the Seller that an inspection is unacceptable within the Inspection Contingency Period, this contingency is waived by the Buyer.

- (c) Seller acknowledges and agrees that Buyer's obligations here under are conditioned upon modifications to the covenants in Exhibit B permitting Buyer's proposed use of the Property being accepted and ratified by those lot owners entitled to enforce said covenants. If the covenants are not modified to Buyer's satisfaction prior to the end of the Inspection Contingency Period, Buyer may terminate this Agreement and be entitled to the return of Fifty Thousand Dollars (\$50,000.00) of the Deposit, Seller shall be entitled to retain the remaining Deposit, and thereafter neither party shall have any further rights, duties or obligations to the other hereunder, except for the obligations which are expressly stated herein to survive the Closing or termination of this Agreement.

5. Representations and Warranties.

- (a) Seller. Except as actually known to Buyer prior to Closing as a result of Buyer's investigations of the Property, Seller warrants and represents, to its actual knowledge, to Buyer as follows as of the date hereof and as of the date of Closing, which representations and warranties shall survive Closing for a period of twelve (12) months:

- (i) Seller has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Seller of its obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Seller is a party or by which it is bound.

- (ii) There are no leases, tenancies, occupancies or licenses encumbering the Property.

- (iv) There are no options to purchase, rights of first refusal, or other pre-emptive purchase rights with respect to the Property.

- (v) There are no disputes regarding the location of the boundaries of the Property or claims of adverse possession or prescriptive easement with respect to the Property.

- (vi) The Property is in compliance with applicable laws, ordinances, and regulations.

- (vii) The Property either abuts or has a deeded right of way to public roads for purposes of pedestrian, vehicular, and utility access.

- (b) Buyer. Buyer has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Buyer of its obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Buyer is a party or by which it is bound.

6. Affirmative Covenants of Seller.

- (a) Prior to Closing Seller shall pay, when due, all taxes and assessments of every type or nature levied or assessed against the Property and any valid lien against the Property.
- (b) Seller (i) shall not commit or suffer waste and (ii) shall materially comply with all laws, ordinances, regulations, covenants, conditions and restrictions affecting the Property and will not suffer or permit any material violation thereof.
- (c) At all times from the execution of this Agreement to the Closing, Seller shall maintain the Property in the same condition as the same is in as of the date of this Agreement.
- (d) From and after the date hereof through the Closing, Seller shall not (i) enter into any new leases affecting the Property or any portion thereof, or (ii) modify, amend, cancel, terminate, extend or change the terms of any lease affecting the Property, or any portion thereof, or any Permitted Encumbrance, or (iii) enter into any other agreements with respect to the sale, lease, or occupancy of the Property or any portion thereof, in each case without the prior written consent of Buyer, which may be withheld in Buyer's sole discretion.
- (d) From and after the date hereof through the Closing, Seller shall not enter into any new contracts or agreements or place any encumbrance on the Property, without the prior written consent of Buyer which may be granted or withheld in Buyer's sole discretion.
- (e) From and after the date hereof and continuing post-Closing, Seller, as a continuing member of the Cryo Road Industrial Park, shall not unreasonably withhold its approval and consent to the location of Buyer's external processing equipment, nor shall Seller support, propose, or impose unreasonable screening requirements for said external processing equipment.

7. Closing; Deed.

- (a) The closing shall take place on or before the date that is ninety (90) days after the issuance of building permits for construction; (the "Closing") at Bernstein, Shur, Sawyer & Nelson, 100 Middle Street, Portland, Maine; or if the Buyer and Seller shall mutually agree in advance in writing, at another time and place. Buyer may extend the Closing for up to thirty (30) days by providing notice to the Seller of such election to exercise such extension prior to the commencement of the extension being exercised.
- (b) At the Closing, Seller shall execute and deliver to Buyer, or Buyer's nominee, against payment of the balance of the purchase price, a Quitclaim Deed with Covenant for the

Property in accordance with the Short Form Deeds Act, 33 M.R.S. 761 et seq. (the "Deed"). Seller also shall execute and deliver to Buyer at the Closing an assignment of any and all permits, licenses, approvals and warranties relating to the Property, to the extent assignable; customary and reasonable title insurance Seller's Affidavit regarding persons in possession and mechanics' liens; a 1099-S data form; REW-3; W-9 form; an underground storage tank affidavit to comply with 38 M.R.S. § 563(6); a road disclosure affidavit to comply with 32 M.R.S. § 193; evidence of Seller's existence and authority to satisfy the customary seller authority requirements for issuance of an owner's title insurance policy; an affidavit that Seller is not a foreign entity as defined in Section 1445 of the Internal Revenue Code; a real estate transfer tax declaration of value form; a certificate confirming the representations in Section 5 are true as of the date of Closing; and such other documents as Buyer, Buyer's counsel and/or Buyer's title insurance company may reasonably require in order to consummate the transactions contemplated by this Agreement; and a settlement statement.

8. Adjustments, Prorations and Closing Costs.

- (a) Real estate taxes and municipal assessments shall be prorated as of the Closing on the basis of the latest available tax bill based on the current municipality tax year.
- (b) Metered utilities, such as water and sewer, shall be paid by Seller through date of closing.
- (c) The Maine real estate transfer tax shall be paid equally by Seller and Buyer in accordance with 36 M.R.S. Section 4641-A.
- (d) The recording fee for the deed of conveyance and any expenses related to any financing for Buyer in connection with the purchase of the Property shall be paid by Buyer.
- (e) A portion of the purchase price shall be withheld at the Closing by Buyer if required by 36 M.R.S. § 5250-A.

9. Possession; Risk of Loss. Seller shall deliver possession of the Property to Buyer immediately at the Closing, free of all leases, tenancies or occupancies. Seller warrants and represents that there are no current leases to the property.

Seller shall maintain insurance on the Property at current levels through and including the date of Closing, and, upon execution of this Agreement, Seller shall provide Buyer with an insurance certificate evidencing the same. The risk of loss or damage to the Property by fire or other casualty, or condemnation, prior to the date of Closing is assumed by Seller. If all or any portion of the Property shall be condemned or taken by right of eminent domain prior to the closing or if Seller receives any notice of such taking prior to the closing (a copy of which Seller shall immediately deliver to Buyer), or if all or a portion of the Property should be destroyed or damaged by fire or other casualty, Buyer may, at its option, terminate this Agreement by written notice delivered to Seller at or prior to the Closing upon which both parties shall be discharged from all further obligations; or Buyer may accept assignment

of insurance or condemnation proceeds and proceed with purchasing the Property, or if the Property is damaged by fire or other casualty, Seller shall have the option of restoring the property to its former condition prior to closing.

10. Default; Remedies; Mediation. In the event that Buyer defaults in any part of its obligations to close this transaction as provided in this Agreement, Seller may terminate this Agreement by written notice to Buyer and thereupon Seller shall be entitled to the Deposit as Seller's sole and exclusive remedy for Buyer's breach, and Escrow Agent shall be authorized to disburse the entire Deposit to Seller. Seller and Buyer acknowledge and agree that the damages for Buyer's breach of this Agreement are difficult to calculate and that the Deposit is a reasonable estimate of such damages. In the event that Seller breaches this Agreement for a reason other than the default of Buyer, Buyer shall be entitled to either (i) terminate this Agreement by written notice to the Seller, in which case Buyer shall be entitled to a return of the entire Deposit, and the Escrow Agent shall be authorized to disburse the Deposit to Buyer, or (ii) pursue the remedy of specific performance. In the event of litigation regarding breach of this Agreement by either party, the party who obtains a final, un-appealable judgment in its favor shall be entitled to collect its reasonable attorneys' and paralegals' fees and court costs from the other party.

Any dispute or claim arising out of or relating to this Agreement or the premises addressed in this Contract shall be submitted to mediation in accordance with the Maine Residential Real Estate Mediation Rules of the American Arbitration Association. This clause shall survive the closing of this transaction.

11. Brokerage. Seller and Buyer each acknowledge that Buyer is represented in this transaction by Reese McFarlane of Boulos Company acting as Buyer's agent (the "Broker"). Buyer agrees to indemnify and hold Seller harmless from any claims made by any broker other than Broker should Buyer's representation in this Paragraph be false. Seller agrees to indemnify and hold Buyer harmless from any claims made by any broker other than Broker should Seller's representation in this Paragraph shall be false. The foregoing indemnities shall include all reasonable legal fees and costs incurred in defense against any such claim.

12. Miscellaneous.

(a) Time. Time is of the essence of this Agreement.

(b) Notices. Except as expressly provided to the contrary in this Agreement, all notices, demands and other communications hereunder shall be in writing and shall be given by electronic mail: if to Seller: Attorney David Ferguson (\_david@dfdnlaw.com\_\_\_\_\_), and if to Buyer\_\_\_\_\_, with a copy of such notice to Seller or Buyer at their addresses set forth in the preamble to this Agreement sent by certified mail, return receipt requested. All notices shall be deemed to have been duly given if the electronic mail time stamp is prior to the expiration date and time specified herein. Attorneys are authorized to give notices on behalf of their clients. Either party may change the notice electronic mail addresses and certified mail notice addresses for purposes of this subparagraph by giving the other party notice of the new address in the manner described herein.

- (c) Assignment. Buyer may assign or transfer its rights under this Agreement to an affiliate in which the principals of Buyer have a substantial (direct or indirect) economic interest, successor by operation of law, wholly owned subsidiary, entity controlled by Buyer or under common control with Buyer and to any entity owning all or substantially all of the assets of Buyer. The covenants and agreements contained in this Agreement shall extend to and be obligatory upon the permitted successors and assigns of the respective parties to this Agreement.
- (d) Entire Agreement. This Agreement constitutes the entire agreement between Seller and Buyer with respect to the sale of the Property, and there are no representations, warranties, agreements or understandings between the parties except as set forth herein.
- (e) Construction. This Agreement shall be governed by and construed in accordance with the laws of Maine, without taking into account choice of law principles. If any provision of this Agreement is determined to be invalid or unenforceable, it shall not affect the validity or enforcement of the remaining provisions hereof.
- (f) Counterpart Execution. This Agreement may be executed in one or more counterpart signatures, and together the signed counterparts shall be deemed to be a fully-executed contract.

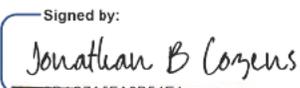
[Remainder of Page Intentionally Left Blank; Signatures Follow]

IN WITNESS WHEREOF, Seller and Buyer have executed this Agreement as of the date first above written.

Seller: Industrial Development Corporation  
of Sanford

By:   
Name: Robert Hardison  
Title: President

Buyer: Aries Clean Technologies LLC

Signed by:  
By:   
Name: Jonathan B Cozens  
Title: Chief Executive Officer

## EXHIBIT A

### Lot 4 Cyro Road Extension

Lot 4 as described in “Plan of Cyro Road Extension Sanford Industrial Park” as recorded in York County Registry of Deeds at Plan Book 239, Page 33, and as amended in Plan Book 389, Page 50, said land being located at the westerly sideline of Cyro Road, in the City of Sanford, County of York and State of Maine, and more particularly bounded and described as follows:

Beginning at the westerly sideline of Cyro Road at a granite monument set as the southeasterly corner of the herein conveyed lot and the northeasterly corner of land now or formerly of RJDJ Associates LLC as described in a deed recorded in the York County Registry of Deeds at Book 14883, Page 802, said corner being the northeasterly corner of Lot 5 described in a “Plan of Cyro Road Extension Sanford Industrial Development Park” as recorded in said Registry at Plan Book 239, Page 33.

Thence S 74° 44’ 11” W 550.13 feet along said land of RJDJ Associates LLC to a found #5 steel rod set at land now or formerly of Sanford-Springvale Mousam Way Land Trust as described in a deed recorded in said Registry at Book 11427, Page 222.

Thence along said Sanford-Springvale Mousam Way Land Trust land the following six courses:

N 21° 22’ 37” W 233.20 feet;

N 04° 36' 08" W 216.90 feet;

N 16° 14' 18" E 129.10 feet;

N 47° 13' 05" E 118.53 feet;

N 63° 07' 19" E 199.83 feet;

N 67° 13' 40" E 554.98 feet; to other land of the Grantor. Said other land being the northwesterly corner of Lot 3 shown on a "Plan of Cyro Road Extension Sanford Industrial Development Park" as recorded in said Registry at Plan Book 239, Page 33.

Thence running S 04° 51' 42" W 587.00 feet along said other land of the Grantor to the easterly side of Cyro Road and a granite monument set as a corner.

Thence running 401.52 feet along Cyro Road and a curve to the left with a radius of 125.00 feet and a cord angle of S 31° 24' 00" W and a cord length of 249.84 feet to a granite monument and point and place begun at.

The above parcel, Lot 4 on said Plan is subject to a water line easement granted to the Sanford Water District as follows:

The easement area is all land conveyed above that is located easterly of the following line. Beginning at a point on the northerly sideline of Cyro Road, said point being located westerly of the granite monument set at the southeasterly corner of the above lot, an arc distance of 32.42 feet on a curve to the left with a radius of 125.00 feet and a cord angle of N 62° 15' 30" W and a cord length of 32.33 feet; thence running N 05° 52' 08" E 297.86 feet to a point; thence running N 13° 54' 29" E 104.91 feet to a point; thence

running N 38° 14' 28 E 15 feet, more or less, to other land of the Grantor.

Being and intending to convey all of Lot 4 as shown on Amended Subdivision "Plan of Cyro Road Extension Sanford Industrial Park" as recorded in said Registry at Plan Book 389, Page 50.

Said premises are SUBJECT TO the "General Notes" and conditions as more particularly appear on said Plans, above-referenced.

Said premises are SUBJECT TO those certain findings of fact, order and standard conditions of the Department of Environmental Protection, dated October 24, 1997, and recorded in the York County Registry of Deeds in Book 8537, Page 212 and Order, dated February 2, 1998, and recorded in said Registry at Book 8670, Page 330.

Being a portion of the same premises conveyed to Industrial Development Corporation of Sanford by Trustees Deed under a Testamentary Trust of Edward H. Emery, Sanford Trust Company Trustee, dated May 3, 1961, and recorded in the York County Registry of Deeds in Book 1461, Page 171, and a portion of the same premises conveyed to Industrial Development Corporation of Sanford by Warranty Deeds of Gerard R. Genest and John E. Garnsey, dated May 22, 1990, and recorded in said Registry of Deeds in Book 5406, Pages 86 and 88 respectively.

TOGETHER WITH the right to use with others, for all purposes of ingress and egress to said premises

including the installation of utilities, certain roads and/or rights-of-way being more particularly shown and designated on said Plan as Cyro Road Extension.

SUBJECT TO the covenants, conditions, restrictions, and reservations which run with the land and which are for the benefit of other land of the Grantor herein, its successors and assigns, within said Sanford Industrial Park and for the benefit of owners of other lots in said Sanford Industrial Development Park as recorded in the York County Registry of Deeds in Book 18096, Page 354 and set forth in Schedule A attached herein and incorporated herein by reference.

SUBJECT TO a Deed of Easement granted from CRME, LLC to SANFORD AIRPORT SOLAR, LLC, dated October 1, 2019 and recorded in the York County Registry of Deed, Book 18214, Page 742.

Being the same premises conveyed to Industrial Development Corporation of Sanford by CRME, LLC by its deed dated April 5, 2024 and recorded in the York County Registry of Deeds at Book 19429, Page 340.

**Exhibit B**

COVENANTS PERTAINING TO PROPERTY OF THE SUBDIVISION PLAN CYRO ROAD  
EXTENSION, SANFORD INDUSTRIAL DEVELOPMENT PARK

*Attach here*

**Schedule A**  
**COVENANTS PERTAINING TO PROPERTY OF**  
**THE SUBDIVISION PLAN CYRO ROAD EXTENSION,**  
**SANFORD INDUSTRIAL DEVELOPMENT PARK**

**PURPOSE**

The purpose of the covenants, conditions, and restrictions is to ensure the proper use of land within the Sanford Industrial Development Park and to protect the owners of individual lots within the Park against inappropriate uses while promoting attractive, high quality development throughout the Park.

1. **LAND USE** - Shall be per the Zoning Ordinance for the Town of Sanford, Maine, Section 280-11-7. Industrial Business Zone (IB). Table of Land Uses, 280 Attachment 1A & 1 B.

No site or lot shall be used for any retailing purpose or business. The following types of industry and/or business shall be prohibited in the Sanford Industrial Development Park; namely tanneries, glue factories, fertilizer plants, cement plants, oil refineries, soap or fat rendering plants, fish processing plants, stockyards, and artificial gas manufacturing plants. The property shall not be used as space for storage of scrap metal or other used materials commonly classified as junk. Notwithstanding any language contained herein to the contrary, use of Lot 3 for the construction of a "Substation" and/or Solar Panels (as more fully defined herein), shall be deemed permitted uses and purposes within the Sanford Industrial Development Park.

All manufacturing and processing conducted by any owner or lessee shall be conducted entirely within the enclosed area of buildings. If outside processing is unavoidable and approved by the Industrial Development Corporation of Sanford, it shall be concealed from view by a screen, ornamental in design and/or conforming to the design of the building provided however, that the Substation and /or Solar Panels proposed for Lot 3 has no requirement that said improvements be enclosed, concealed or to otherwise comply with these requirements.

No site or lot shall be used for any purpose or business which is considered dangerous or unsafe, or which constitutes a nuisance, or is noxious, or offensive by reason of emission of dust, odor, gas, smoke, fumes, or noise provided however, that the Substation and /or Solar Panels proposed for Lot 3 shall not be deemed a violation of or otherwise inconsistent with this provision.

2. **PARKING** - No parking shall be permitted on any of the streets or ways within the Sanford Industrial Development Park, so-called. Off-street employee and visitor automobile parking facilities shall be provided and shall be in conformity with the applicable ordinances of the Town of Sanford, Maine, and all parking areas shall be paved. Freight cars or truck storage shall be separately provided, and areas for maneuvering and unloading trucks shall be provided in addition to space provided for employee and visitor parking. Notwithstanding any language contained herein to the contrary, Lot 3 has no requirement to comply with this provision regarding "Parking" during the construction, replacement or removal of the Substation.

3. **STORAGE** - All outdoor storage shall be restricted to the side yard and rear yard areas and, in any event, no outside storage of any kind shall be permitted unless the stored materials are neatly arranged and properly screened with suitable fencing. The manner, place, and fencing of stored materials must be approved in writing by the Board of Directors of the Industrial Development Corporation of Sanford, as hereinafter set forth. No waste material or refuse shall be dumped upon or be permitted to remain upon any part of any site or lot outside of a building constructed thereon. No subsurface or surface disposal will be allowed for sanitary wastes, cooling water, sump and

floor drain discharges, or industrial wastes. Below ground tanks shall be constructed and installed as per Maine Department of Environmental Protection rules and regulations. Above ground tanks shall be properly screened and may be contained by dikes designed to hold the contents of the storage tanks. Design of the tanks, dikes, and enclosures is subject to approval by the Sanford Water District and the Maine DEP. Notwithstanding any language contained herein to the contrary, Lot 3 has no requirement to comply with this provision regarding "Storage" however, any materials (unattached and not appurtenant to the Substation and/or Solar Panels) stored outside on Lot 3 shall be arranged neatly and properly secured.

4. **APPROVAL OF PLANS** -

(a) No construction or alteration of any building, enclosure, fence, loading dock, parking facility, storage yard, or any other structure or permanent improvement on any site or lot shall be commenced or permitted unless and until site plans or plans and specifications therefore showing plot layout and all exterior elevations and colors thereof and structure design, fencing, landscaping and parking shall have been submitted to and approved in writing by the Industrial Development Corporation of Sanford and comply with the requirements of Sanford Zoning ordinances, and in particular Site Plan Review.

(b) All such site plans or plans and specifications shall be submitted in writing and signed by the owner or the authorized agent of the owner of the site or lot on which the proposed construction or alteration is to be located.

(c) Approval shall be based upon the following considerations: adequacy of site dimensions; adequacy of structural design; conformity and harmony of external design with neighboring structures; effect of location and use of improvements on neighboring sites, improvements, operations and uses; relation of topography, grade and finished ground elevation of the site being improved to that of neighboring sites; proper facing of main elevation with respect to nearby streets; conformity of the plans and specifications to the purpose and general plan and intent of these restrictions; and the effect of unusual, unique or distinguishing characteristics of the site or lot upon the location and use of proposed improvements; the appropriateness of the building design, material and workmanship to the building function on said site. In addition, exterior materials used in the construction of any building or other structure or improvements on any site or lot shall be of a permanent type and of good quality. There is reserved to the directors of the Industrial Development Corporation of Sanford the right to base its approval of such plans and specifications upon such other considerations as it deems necessary or appropriate under the then-prevailing circumstances.

(d) The Industrial Development Corporation of Sanford will not arbitrarily or unreasonably withhold its approval of such plans and specifications.

(e) Any change in such plans and specifications subsequent to the initial written approval of the Board of Directors of the Industrial Development Corporation of Sanford must be re-submitted for the written approval of said Board of Directors.

(f) Neither the members of the Board of Directors of the Industrial Development Corporation of Sanford, nor that Corporation or its successors and assigns, shall be liable in damages to anyone submitting plans and specifications for approval, or to any negligence or non-feasance arising out of or in connection with the approval or disapproval or failure to approve any such plans and specifications. Every person or entity who submits plans for approval agrees, by submission of such plans, and every owner of any of said property, by acquiring title thereto, agrees that he will not bring any action to recover any such damages.

(g) Notwithstanding any language to the contrary contained in this Section 4(a)-4(f), without any prior or continuing approval of the Board of Directors of the Industrial Development Corporation, Lot 3 may be used for the construction, operation, maintenance and removal of a “**Substation**” which collectively means, (a) Collection Facilities, (b) Substation Facilities, (c) Transmission Facilities; and (d) any other structures appurtenant to the Substation including without limitation, fencing, loading, docking, parking and storage. The term “**Collection Facilities**” means all improvements, fixtures, and other properties whose purpose is to gather and deliver electrical power to an electrical power grid or other system, including, without limitation, transformers, overhead and underground collection lines, junction boxes, interconnection facilities and all necessary and proper improvements and fixtures for use in connection therewith. The term “**Substation Facilities**” means one or more standalone electrical lines and cables, meters, monitoring and control equipment, switches, transformers, batteries and other devices for storage of electrical energy, all improvements, structures, equipment, enclosures, fencing, security devices, and all electrical and communications equipment necessary to condition and increase the voltage of electricity to make it suitable for transmission on, and to deliver it to, Transmission Facilities connected to an electric power grid or other system. The term “**Transmission Facilities**” means all improvements whose purpose is to deliver electrical power to an electrical power grid or other system, including without limitation transformers, overhead and underground electrical transmission lines, interconnection facilities, guys, anchors, wires, poles, towers, foundations, footings, cross arms and other structures related to the transmission of electrical power. Without any prior or continuing approval of the Board of Directors of the Industrial Development Corporation, Lot 3 may also be used to install “**Solar Panels**” which means, any photovoltaic energy system designed for the generation of electrical power from the collection of sunlight, including without limitation, the photovoltaic panels, foundations, support structures, braces and related equipment. And, for greater clarity, any change in the plans and specifications to the Substation and/or the Solar Panels shall not require any approval of said Board of Directors.

5. **RESERVED.**

6. **LANDSCAPING** - Landscaping shall be a priority and will extend to the roadway and shall be properly maintained at all times. All lots including visible sides of buildings, driveway entrances, and road frontage shall be well landscaped so as to embrace the aesthetic integrity of the Park. Trees shall be preserved to the extent that they do not interfere with the buildings or pavements. All cleared areas will be landscaped and maintained. Tree planting and shrubbery shall be planted along the side areas of the building and along driveways. Plantings shall be required along the building edge where foundations are exposed and/or where building facades consist of long unbroken or bland walls. Dumpsters, transformers, and HVAC units shall be screened from view with appropriate landscaping. Notwithstanding any language contained herein to the contrary, Lot 3 shall be permitted to maintain landscaping that is in accordance with the visual mitigation plan approved under the Maine Site Location of Development Act, the City of Sanford’s Code of Ordinance and based on standards that are safe and compatible, and which do not create an interference, with the facilities comprising the Substation and/or the Solar Panels. At all times Lot 3 shall have the right to remove landscaping and shall not be required to maintain landscaping that is unsafe, incompatible or creates an unsafe or hazardous situation with the facilities comprising the Substation and/or the Solar Panels.

7. **SIGNS** - Plans and specifications for the construction, installation, or alteration of all outdoor signs shall be first submitted to and have the written approval of the Industrial Development Corporation of Sanford. As to each such sign, approval shall be based upon the following considerations: the quality of materials used in its construction; the harmony of its design with other signs within the Park; its size and relationship to the size of the buildings or improvements located on, or proposed to be located upon the site or lot, and its relationship and harmony with other signs located within the Park. In any event, no billboards or flashing or moving signs shall be permitted. All lot owners in the Sanford Industrial Development Park will be held responsible for a percentage

of costs related to park entrance signage including electricity and maintenance. These costs will be divided equally among the owners of the lots in the Park. Notwithstanding any language contained herein to the contrary, Lot 3 shall be permitted, without any prior consent or approval, to maintain signs that are required or desired for the health, safety and welfare of others.

8. **CONDITION OF PROPERTY** - The owner of any site or lot shall at all times keep the premises, buildings, improvements, and appurtenances in a safe, clean, wholesome condition and comply in all respects with all government, health, fire, and police requirements and regulations, and the owner will remove at his or its own expense any rubbish of any character whatsoever which may accumulate on such site or lot. In the event such owner fails to comply with any or all of such specifications or requirements, then the Industrial Development Corporation of Sanford, or its successors and assigns, shall have the right, privilege, and license to enter upon such premises and make any and all corrections or improvements that may be necessary to meet such standards and to charge such owner the expenses incurred in doing so. Each owner shall be responsible for the maintenance of any drainage ditch which abuts or passes through the property. Notwithstanding any language contained herein to the contrary, due to the nature of the equipment to be installed on Lot 3 and for the health, safety and welfare of others, the Industrial Development Corporation of Sanford, its successors, assigns, licensees, agents and invitees shall have no right, privilege, and license to enter upon to Lot 3 to make any corrections or improvements.

9. **CONSTRUCTION PERIOD AND OPTION TO REPURCHASE** -

(a) If after the expiration of two (2) years from the date of conveyance of a site or lot within the Park, the Grantee of such site or lot shall not have begun in good faith the construction of a permanent building upon such site or lot, the Industrial Development Corporation of Sanford retains the right and option for a period of sixty (60) days next following said two (2) years from the date of such conveyance to demand in writing a reconveyance of said site or lot. The price to be paid shall be the purchase price of the site or lot paid by the Grantee for such site or lot when originally acquired from the Industrial Development Corporation of Sanford less remediation costs if any.

(b) For a period of two (2) years after the date of conveyance of a site or lot lying within the Park, the Grantee of such site or lot shall not be able to sell such site or lot without first offering it to the Industrial Development Corporation of Sanford at the same price paid by such Grantee for such site or lot when originally acquired from the Industrial Development Corporation of Sanford. Such offer shall be made to the Industrial Development Corporation of Sanford in writing and sent by registered mail. The Industrial Development Corporation of Sanford shall have a period of sixty (60) days from the date of receipt of such offer in which to accept such offer and in the absence of a written acceptance sent by the Industrial Development Corporation of Sanford, the Grantee shall be free to sell such site or lot to any person at any price deemed desirable by such Grantee.

(c) In the event any owner of site or lot lying within the Park shall at any time desire to sell all or any part of such site or lot which at the time is unimproved, then, in such event, the Industrial Development Corporation of Sanford shall have the prior right and option to purchase the unimproved premises proposed to be sold at the same price per acre paid by the Grantee of said site or lot when originally acquired from the Industrial Development Corporation of Sanford. Prior to any sale of such site or lot, the owner of such site or lot shall notify the Industrial Development Corporation of Sanford, in writing, by registered mail, of such intention to sell, describing the premises to be sold, and the Industrial Development Corporation of Sanford shall have sixty (60) days from the date of receipt of such notice to exercise said option, such owner shall be free to sell such site or lot to any person at any price deemed desirable to such owner.

(d) Notwithstanding any language contained herein to the contrary, this Section 9 shall not apply to Lot

3.

10. ENFORCEMENT - Enforcement of these covenants and restrictions shall be by any proceeding at law or in equity against any person, firm or corporation violating or attempting to violate any covenant or restriction, either to restrain violation or to recover damages, and against the land to enforce any lien created by these covenants; and failure by the Industrial Development Corporation of Sanford to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter.

11. RIGHT OF MODIFICATION - The Industrial Development Corporation of Sanford hereby waives the right to alter, amend, change, cancel, release, nullify, revoke or modify any one or all of the terms and conditions hereinbefore recited without the consent of all of the owners of the Industrial Development Corporation of Sanford.

12. SEVERABILITY - Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any other provisions which shall remain in full force and effect.

**Attachment E**

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1000-Foot Facility Abutters



# Aries Project - 1000ft abutters

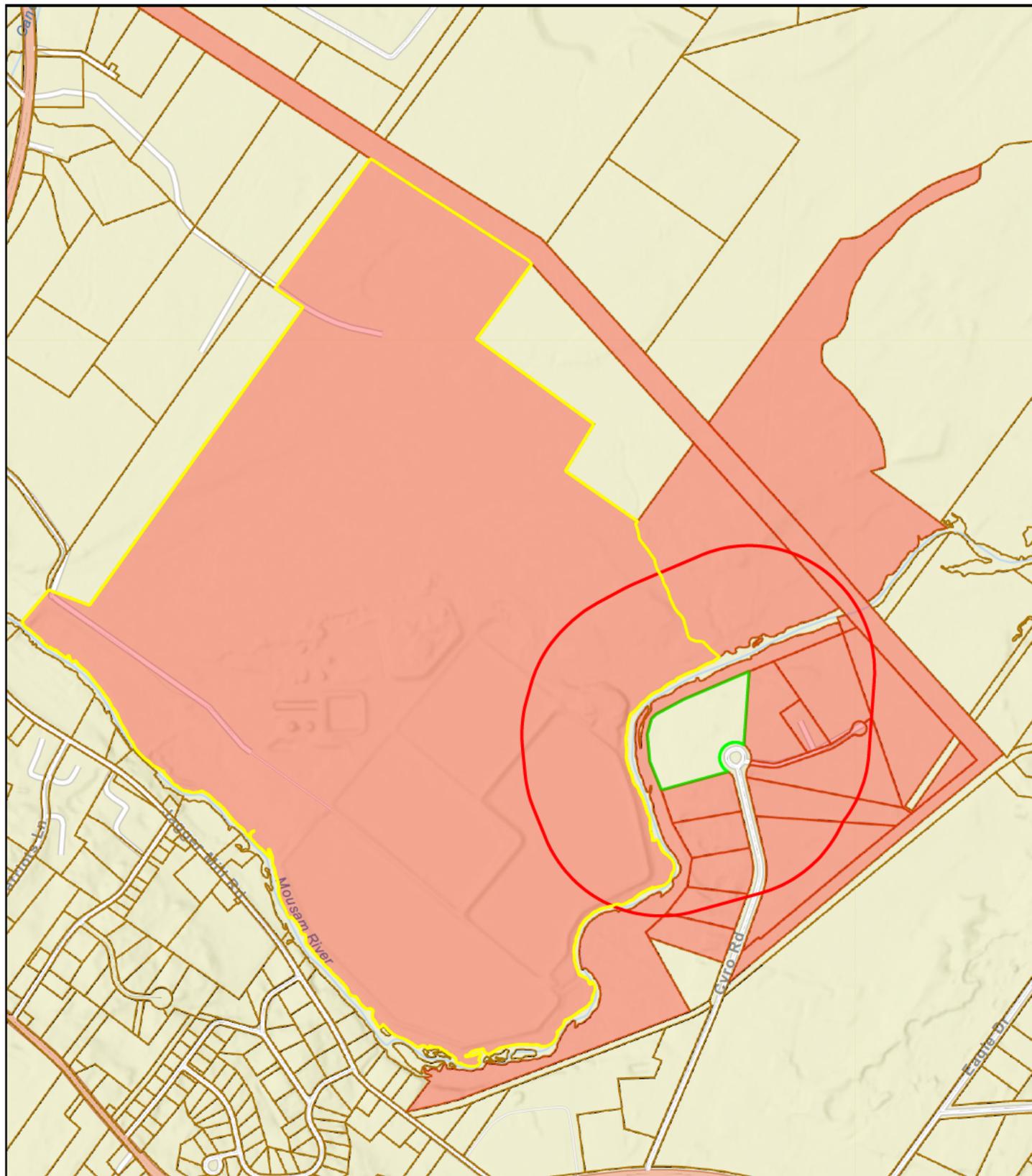
City of Sanford, ME

1 inch = 1095 Feet



[www.cai-tech.com](http://www.cai-tech.com)

April 14, 2025



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



# 1000 feet Abutters List Report

Sanford, ME  
April 14, 2025

## Subject Property:

Parcel Number: R18B-4  
CAMA Number: R18B-4  
Property Address: CYRO RD

Mailing Address: INDUSTRIAL DEVELOPMENT  
CORPORATION OF SANFORD  
% SANFORD REGIONAL ECONOMIC  
GROWTH COUNCIL 917 MAIN ST SUITE  
D  
SANFORD, ME 04073

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## Abutters:

Parcel Number: R12-95  
CAMA Number: R12-95  
Property Address: 71 CYRO RD

Mailing Address: CENTRAL MAINE POWER COMPANY  
% AVANGRID MGMT CO - LOCAL TAX  
ONE CITY CENTER - 5TH FL  
PORTLAND, ME 04101

Parcel Number: R15-42  
CAMA Number: R15-42  
Property Address: 192 GAVEL RD

Mailing Address: SANFORD SEWERAGE DISTRICT  
PO BOX 338  
SPRINGVALE, ME 04083

Parcel Number: R16-36  
CAMA Number: R16-36  
Property Address: NEW DAM RD

Mailing Address: NEW ENGLAND ENERGY CO  
8834 STABLE LN  
HOUSTON, TX 77024

Parcel Number: R18B-1  
CAMA Number: R18B-1  
Property Address: 95 CYRO RD

Mailing Address: R & L REALTY LLC  
95 CYRO DR  
SANFORD, ME 04073

Parcel Number: R18B-11  
CAMA Number: R18B-11  
Property Address: CYRO RD

Mailing Address: CENTRAL MAINE POWER COMPANY  
% AVANGRID MGMT CO - LOCAL TAX  
ONE CITY CENTER - 5TH FL  
PORTLAND, ME 04101

Parcel Number: R18B-11Z  
CAMA Number: R18B-11Z  
Property Address: CYRO RD

Mailing Address: SANFORD AIRPORT SOLAR LLC  
700 UNIVERSE BLVD LAW/JB  
JUNO BEACH, FL 33408

Parcel Number: R18B-12  
CAMA Number: R18B-12  
Property Address: CYRO RD

Mailing Address: SANFORD-SPRINGVALE MOUSAM WAY  
LAND TRUST  
510 MAIN ST  
SPRINGVALE, ME 04083

Parcel Number: R18B-2  
CAMA Number: R18B-2  
Property Address: CYRO RD

Mailing Address: R&L REALTY LLC  
95 CYRO DR  
SANFORD, ME 04073

Parcel Number: R18B-3A  
CAMA Number: R18B-3A  
Property Address: CYRO RD

Mailing Address: SANFORD AIRPORT SOLAR LLC  
700 UNIVERSE BLVD LAW/JB  
JUNO BEACH, FL 33408



www.cai-tech.com

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# 1000 feet Abutters List Report

Sanford, ME  
April 14, 2025

Parcel Number: R18B-3B  
CAMA Number: R18B-3B  
Property Address: 22 NAVIA WAY

Mailing Address: SANFORD AIRPORT SOLAR LAND  
HOLDINGS LLC  
700 UNIVERSE BLVD LAW/JB  
JUNO BEACH, FL 33408

Parcel Number: R18B-3C  
CAMA Number: R18B-3C  
Property Address: 30 NAVIA WAY

Mailing Address: CENTRAL MAINE POWER COMPANY  
% AVANGRID MGMT CO - LOCAL TAX  
ONE CITY CENTER - 5TH FL  
PORTLAND, ME 04101

Parcel Number: R18B-3D  
CAMA Number: R18B-3D  
Property Address: 12 NAVIA WAY

Mailing Address: SANFORD AIRPORT SOLAR LLC  
700 UNIVERSE BLVD LAW/JB  
JUNO BEACH, FL 33408

Parcel Number: R18B-5  
CAMA Number: R18B-5  
Property Address: 122 CYRO RD

Mailing Address: RJDJ ASSOCIATES LLC  
PO BOX 152  
SANFORD, ME 04073

Parcel Number: R18B-6  
CAMA Number: R18B-6  
Property Address: CYRO RD

Mailing Address: INDUSTRIAL DEVELOPMENT CORP  
% SANFORD REGIONAL ECONOMIC  
GROWTH COUNCIL 917 MAIN ST SUITE  
D  
SANFORD, ME 04073

Parcel Number: R18B-7  
CAMA Number: R18B-7  
Property Address: 100 CYRO RD

Mailing Address: DOWN-EAST COMMERCIAL  
PROPERTIES LLC  
%DOWN-EAST COMM PROPERTIES LLC  
100 CYRO DR  
SANFORD, ME 04073

Parcel Number: R18B-8  
CAMA Number: R18B-8  
Property Address: CYRO RD

Mailing Address: INDUSTRIAL DEVELOPMENT CORP  
% SANFORD REGIONAL ECONOMIC  
GROWTH COUNCIL 917 MAIN ST SUITE  
D  
SANFORD, ME 04073

Parcel Number: R18B-9  
CAMA Number: R18B-9  
Property Address: CYRO RD

Mailing Address: SANFORD BATTERY PROPERTY LLC  
20 PARK PLAZA STE 1101  
BOSTON, MA 02116



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**Attachment F**

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Documentation of Financial Ability

INDUCEMENT AGREEMENT (TAX EXEMPT BOND)

THIS AGREEMENT is entered into by and between the Finance Authority of Maine (hereinafter called the "Authority") and Aries Pine Tree, LLC, a Delaware Corporation (hereinafter called the "Borrower").

1. **Preliminary Statement.** Among the matters of mutual inducement which have been previously discussed by the parties and have resulted in the execution of this Agreement are the following:
  - (a) **The Authority is authorized under the provisions of Chapter 110 of Title 10 of the Maine Revised Statutes, as amended (the "Act"), including especially subchapter III thereof, to issue revenue obligation securities ("bonds") of the Authority to pay the cost of or provide financial assistance for the acquisition, construction, reconstruction, renewal or replacement of eligible projects in the State and to enter into agreements with one or more users of such eligible projects to provide for payments which will be sufficient to pay the principal of and interest on, and redemption premium, if any, on, such bonds as they become due and payable, as well as to pay any and all costs and expenses arising out of or related to the issuance and servicing of such bonds of the Authority, all for the purpose of, *inter alia*, providing enlarged opportunities for gainful employment by the inhabitants of the State and to insure the betterment of the economy of the State and the living standards and health of its inhabitants.**
  - (b) **The Borrower desires to undertake an eligible project consisting of: A waste management facility: Gasification of municipal wastewater treatment plant sludge, otherwise known as biosolids (the "Project") in Sanford, Maine.**
  - (c) **Subject to execution of this Agreement by the parties and the execution by the parties of financing documents as contemplated by Section 3(b) hereof, the Authority is willing to take such steps as it may deem reasonably necessary or desirable to provide bond financing for a portion of the cost of such Project and other expenses related thereto, all of which will have an estimated cost not exceeding \$ 138,000,000 bond proceeds.**
  - (d) **The Borrower and the Authority anticipate that the Project will promote the purposes of and is authorized by the Act, and will help to further the economic well-being of the inhabitants of the State and to insure preservation and betterment of the living standards and health of the inhabitants of the State.**
  - (e) **The Authority is desirous of the Borrower's undertaking the Project, and the Authority wishes to induce such undertaking and to assist the Borrower therein by providing bond financing for a portion of the Project to the extent contemplated by this Agreement.**
  - (f) **The Borrower wishes to obtain the assurances contained in this Agreement before proceeding further with substantial expenditures for the Project.**

- (g) **The Authority wishes to indicate its approval of the Project and its present intent to issue its bonds to pay a portion of the costs of the Project, and to take its initial official action with respect thereto.**
- (h) **The acquisition, construction or other implementation of the Project should not be delayed until after a Certificate of Approval has been issued, a resolution of the Authority adopted specifically authorizing issuance of the bonds and a loan insurance or other financing commitment issued for the Project, which could not be immediately accomplished.**

2. **Undertakings on the Part of the Authority.** Subject to the conditions herein stated, the Authority agrees as follows:

- (a) **That, subject to: a determination by bond counsel that the Project is eligible for tax-exempt financing, the issuance of a Certificate of Approval, the issuance of a loan insurance or other financing commitment, an allocation of the State ceiling, and subject to adoption of a bond resolution by members of the Authority, the Authority will undertake to use its best efforts to proceed, subject to agreement among the Authority, the Borrower and the purchaser of the bonds as to the terms, conditions, timing and pricing of the bonds and agreement on the terms and conditions of all instruments and agreements to be entered into with respect to the Project and the bonds, to issue and sell its bonds, or a series thereof, pursuant to the terms of the Act, in aggregate amount not exceeding \$138,000,000 for the purpose of financing a portion of the Project; provided that this agreement shall not in any way obligate the Authority to issue such Certificate of Approval, to adopt such a bond resolution, to issue an allocation of the State ceiling or to approve loan insurance or other credit enhancement for the Project. That portion of the bonds providing financing for the Project shall be payable solely from the revenues derived from or in connection with the Project pursuant to agreements entered into between the Borrower and the Authority and the bonds shall not constitute any debt or liability of the State, or any political subdivision thereof, or of the Authority, or a pledge of the faith and credit of the State or any political subdivision, but shall be payable solely from the revenues of the Project, except as may be provided in a Loan Insurance Contract, Capital Reserve Contract or other credit enhancement agreement with the respect to the Project executed by the Authority. The Authority's undertakings hereunder may, at the Authority's discretion, be subject to the Authority being successful in assembling a pool of eligible projects to be financed from the proceeds of the bonds in all respects satisfactory to the Authority and the purchaser of the bonds.**
- (b) **That it will take or cause to be taken such other acts and adopt such further proceedings as may be reasonably required to implement the aforesaid undertakings or as it may deem appropriate in pursuance thereof.**

3. **Undertakings on the Part of the Borrower.** Subject to the conditions stated above, the Borrower agrees as follows:

- (a) That it will proceed with the Project and use its best efforts to cause it to be completed, subject to the availability of proceeds from the issuance of the bonds, and the Borrower may expend such funds as may be necessary to accomplish such purposes, subject to reimbursement for qualifying expenditures from the proceeds of the bonds.
- (b) That, contemporaneously with the delivery of such bonds, or within such reasonable time thereafter (in no event to be a longer time than required to maintain the tax- exempt status of the bonds) as the Authority shall decide, it will enter into appropriate financing documents ("Financing Documents") with the Authority under the terms of which it will obligate itself to pay to the Authority payments sufficient in the aggregate to pay the principal of and interest on and the redemption premium, if any, on that portion of such bonds issued to finance the Project as and when the same shall become due and payable, and to pay such other costs and expenses of the financing, including but not limited to Trustee's fees, underwriters' fees, paying agent's fees, remarketing fees (if the interest rate is variable), letter of credit fees and reimbursement amounts, such Financing Documents to contain provisions required by law and such other provisions as may be required by the Authority consistent with similar past financings, and such other further provisions as shall be mutually acceptable to the Authority and the Borrower.
- (c) That it will take such further action and adopt such further proceedings as may be required to implement its aforesaid undertakings or as it may deem appropriate in pursuance thereof.
- (d) (i) The Borrower hereby releases the Authority from and agrees to indemnify and hold harmless the Authority, its members and employees, from any and all losses, claims, damages, liabilities, or expenses whatsoever, whether based on a tort, contractual, or other claim of any nature whatsoever including, but not limited to, any failure of the Authority to provide the financing contemplated hereby or any loss or damage to property or injury to or death of any persons, that arises out of the acquisition, construction, financing or operation of the Project or the failure of the Borrower to perform any of its obligations relating to the Project or the failure of the Authority to perform any of its obligations hereunder or under the bonds or Financing Documents. In case any action shall be brought against the Authority as a result of or concerning the Project or the financing thereof, the Borrower shall promptly assume the defense thereof, including the employment of counsel, and payment of all expenses, and the Authority shall have the right to employ separate counsel in any such action and to participate in the defense thereof, including the right to negotiate and consent to a settlement.
- (ii) The Borrower further agrees to pay promptly upon receipt of an invoice, bill, or other evidence of an expense incurred, all reasonable and necessary out-of-pocket expenses, including attorney's fees, which the Authority may have incurred arising from the execution of this Agreement and the performance by the Authority of its obligations hereunder, including but not being limited to those expenses incurred in anticipation of the issuance of the bonds, at the request or behest of the Borrower or to or for the benefit of the Borrower, including fees, charges and expenses of consultants and prospective trustee(s), paying agent(s), remarketing agent(s), underwriter(s) and bond counsel, whether or not the bonds

are issued, subject to proration of such expenses as may be common to all eligible projects proposed to be financed by the proceeds of the bonds.

- (iii) This Paragraph 3(d) shall survive the payment in full of such bonds and the termination of any and all documents including any lease or sale agreement, relating to the Project.

4. **General Provisions.**

- (a) All commitments of the Authority under Paragraph 2 hereof and of the Borrower under Paragraph 3 hereof [except 3(d), which shall be applicable and survive as stated] are subject to the condition that on or before twelve months from the date hereof (or such other date as shall be mutually satisfactory to the Authority and the Borrower), the Authority and Borrower shall have agreed to mutually acceptable terms for such bonds and for the sale and delivery thereof, and mutually acceptable terms and conditions of the Financing Documents referred to in Paragraph 3 and the proceedings referred to in Paragraph 2 and 3. In the event such bonds are not sold this Agreement shall thereupon terminate, unless extended by the parties hereto, in writing, subject to Paragraph 3(d) above, and subject to being reinstated by the parties hereto by written agreement at any time after termination.
- (b) The failure of the Authority to insist upon strict performance of any of the obligations of the Borrower throughout and pursuant to the Project shall not be taken as a waiver of the right to insist upon strict performance by the Borrower or the right to exercise any remedy on account of any further breach thereof.
- (c) This Agreement constitutes "other similar official action" under the provisions of Section 1.103 of the Internal Revenue Code Income Tax regulations.
- (d) This Agreement shall be binding upon and inure to the benefit of the successors and assigns (provided the Authority must approve in writing in advance any assignment of Borrower's rights hereunder) of the parties hereto.
- (e) Wherever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective and valid under applicable law. However, the provisions of this Agreement are severable, and if any one clause or provision hereof shall be held invalid, illegal or unenforceable in whole or in part, then such invalidity, illegality or unenforceability shall affect only such clause or provision, or part thereof, and shall not in any manner affect any other clause or provision of this Agreement and the validity, legality and enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired thereby.
- (f) This Agreement may be executed in any number of counterparts, and by each party on a separate counterpart, each of which shall be deemed an original, but all of which constitute one instrument. In proving this Agreement it shall not be necessary to produce or account for more than one such counterpart signed by the party against whom enforcement is sought.

- (g) **All subjects of negotiation and discussion between the parties on which agreement has been reached have been incorporated and integrated into this Agreement, and there are no side agreements or understandings between and among the parties other than as be set forth herein, and no evidence of any such side agreements or understandings between and among the parties shall be permitted to vary the terms and conditions set forth herein, nor may any prior drafts of this Agreement be used as evidence of or to construe this Agreement.**
  
- (h) **This Agreement shall be governed by and construed in accordance with the laws of the State of Maine. The parties hereby stipulate and agree that the definition of and standard of "good faith" and/or "good faith and fair dealing" under the statutory and common law (and the law of equity) of the State of Maine as applicable to this Agreement and each document executed pursuant hereto or to any other instrument related hereto or mentioned herein shall be (and shall only be) "honesty in fact in the conduct or transaction concerned."**

IN WITNESS WHEREOF, the parties hereto have entered into this Agreement by their officers hereunto duly authorized as of the 28th day of February, 2025.

**WITNESS:**

**Finance Authority of Maine**

DocuSigned by:  
*Carlos R. Mello*

By: ~~Bruce Wagner~~ *Carlos R. Mello*  
Its: Chief Executive Officer

\_\_\_\_\_

**Aries Pine Tree, LLC**

Signed by:  
*Jonathan B Cozens*

By: Jonathan Cozens  
Its: Chief Executive Officer

\_\_\_\_\_

**Attachment G**

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Criminal / Civil Disclosure Statement



# Maine Department of Environmental Protection

## Application Disclosure Statement

Name: Benjamin Tisdel

Date of Birth: [REDACTED]

Business Address, City, and State:

Home Address, City and State:

4037 Rural Plains Circle, STE 290, Franklin, [REDACTED] [REDACTED]

Signature: DocuSigned by:  
*Ben Tisdel*  
40BD015877B9423...

Date: May 2, 2025

Does this applicant hold at least a 5% equity interest in any company that collects, transport, treats, stores, or disposes of solid waste or hazardous waste?

- No.
- Yes. Please enter business name and address:

Has the applicant been criminally convicted in any state or country?

- No.
- Yes. List and explain.

In the 5 years immediately preceding the filing of this application, was the applicant party to any adjudicated civil violations of environmental laws or rules administered by any state or country?

- No.
- Yes. List and explain.

In the 5 years immediately preceding the filing of this application, was the applicant party to any administrative agreements, consent decrees, or administrative orders for violations of environmental laws administered by any state or country?

- No.
- Yes. List and explain.

Is the applicant party to any additional ongoing court proceeding, administrative consent agreement negotiation, or administrative enforcement action, not already provided, related to environmental laws administered by the Maine Department of Environmental Protection or the State of Maine?

- No.
- Yes. List and explain.

Provide a list of any agencies outside of Maine that have regulatory responsibilities over the applicant in connection with its collection, transportation, treatment, storage or disposal of solid or hazardous waste and any other information required by the Department or the Office of the Attorney General that relates to the enforcement history or character of the applicant.

- N/A
- List of agencies/additional information.

Natural Environment Documentation



**STATE OF MAINE**  
**DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY**

177 STATE HOUSE STATION  
AUGUSTA, MAINE 04333

**JANET T. MILLS**  
GOVERNOR

**AMANDA E. BEAL**  
COMMISSIONER

December 30, 2024

Daniel Fefer  
Epsilon Associates  
3 Mill & Main Place, Suite 250  
Maynard, MA 01754

Via email: [dfefer@epsilonassociates.com](mailto:dfefer@epsilonassociates.com)

Re: Rare and exemplary botanical features in proximity to: Aries Clean Technologies LLC Biosolids Gasification Facility, Cyro Road, Sanford, Maine

Dear Daniel Fefer:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 30, 2024 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Sanford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

**MOLLY DOCHERTY, DIRECTOR**  
MAINE NATURAL AREAS PROGRAM  
90 BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-8044  
[WWW.MAINE.GOV/DACF/MNAP](http://WWW.MAINE.GOV/DACF/MNAP)

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

*Lisa St. Hilaire*

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program  
207-287-8044 | [lisa.st.hilaire@maine.gov](mailto:lisa.st.hilaire@maine.gov)

**Rare and Exemplary Botanical Features within 4 miles of  
Project: Aries Clean Technologies Biosolids Gasification Facility, Cyro Road, Sanford, Maine**

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
<b>Atlantic White Cedar</b>						
	SC	S2	G4	2019-06-04	1	Forested wetland
	SC	S2	G4	2019-06-06	5	Forested wetland
	SC	S2	G4	2020-06-24	6	Forested wetland
	SC	S2	G4	2006-04-17	17	Forested wetland
	SC	S2	G4	2018-01-24	26	Forested wetland
	SC	S2	G4	2020-05-26	27	Forested wetland
	SC	S2	G4	2017-07-26	29	Forested wetland
	SC	S2	G4	2016-05-17	30	Forested wetland
<b>Atlantic White Cedar Bog</b>						
		S1	G3G4	2006-06-28	1	
<b>Atlantic White Cedar Swamp</b>						
		S2	G3G5	2019-06-04	2	
		S2	G3G5	2019-10-09	3	
		S2	G3G5	2019-06-07	4	
		S2	G3G5	2020-05-26	9	
		S2	G3G5	2019-05-29	10	
		S2	G3G5	2017-07-26	11	
		S2	G3G5	2016-05-17	12	
<b>Beach Plum</b>						
	E	S1	G4	1954-06-22	14	Rocky coastal (non-forested, upland)
<b>Blunt-lobed Grapefern</b>						
	T	SU	G4	2006-11-28	4	
<b>Bushy Aster</b>						
	PE	SH	G5	1894-09-04	1	

Button Sedge						
	SC	S2	G5	2017-SUMMER	4	
Carpenter's Square						
	PE	SX	G5	1898	1	Hardwood to mixed forest (forest, upland)
Clammy Azalea						
	E	S1	G5	1898-09-21	3	Hardwood to mixed forest (forest, upland),Forested
Clothed Sedge						
	E	S1	G5	1896-07-02	3	Dry barrens (partly forested, upland)
	E	S1	G5	2017-07-11	10	Dry barrens (partly forested, upland)
Columbian Watermeal						
	SC	S2	G5	1993	4	Open water (non-forested, wetland)
Creeping Spike-moss						
	E	S2	G5	1947-07-03	4	Open wetland, not coastal nor rivershore (non-forested,
	E	S2	G5	1938-09-08	5	Open wetland, not coastal nor rivershore (non-forested,
Dioecious Sedge						
	SC	S3	G4G5	1858-06	10	Non-tidal rivershore (non-forested, seasonally wet),Open
Dwarf Dandelion						
	E	S1	G5	1916-08	2	Rocky coastal (non-forested, upland),Dry barrens (partly
	E	S1	G5	1896-06-14	3	Rocky coastal (non-forested, upland),Dry barrens (partly
Ebony Spleenwort						
	SC	S2	G5	1998-08	17	Rocky summits and outcrops (non-forested,
Fall Fimbry						
	SC	S2S3	G5	1898-09-03	5	Open wetland, not coastal nor rivershore (non-forested,
Fern-leaved False Foxglove						
	SC	S3	G5	1898-09-12	20	Dry barrens (partly forested, upland),Hardwood to mixed
	SC	S3	G5	2008-09-01	32	Dry barrens (partly forested, upland),Hardwood to mixed
Great Rhododendron						
	T	S1	G5	1955-07	5	Conifer forest (forest, upland),Hardwood to mixed forest
Hairy Boneset						

Hairy Boneset						
	E	S1	G5T5	1870	1	Hardwood to mixed forest (forest, upland)
Hairy Bush-clover						
	E	S1	G5T5?	1936-07-23	1	Dry barrens (partly forested, upland),Hardwood to mixed
Hollow Joe-pye Weed						
	SC	S2	G5	2001-06-26	14	Open wetland, not coastal nor rivershore (non-forested,
	SC	S2	G5	2001-06-27	15	Open wetland, not coastal nor rivershore (non-forested,
Leatherleaf Bog						
		S4	G5	1996-07-18	3	
Leonard's Skullcap						
	PE	SH	G5T5	1898-07-29	3	Non-tidal rivershore (non-forested, seasonally wet)
Marsh Milkwort						
	PE	SH	G5T4	1901-09-03	2	Dry barrens (partly forested, upland),Open wetland, not
Muhlenberg Sedge						
	E	S1	G5	1939-07-20	3	Dry barrens (partly forested, upland)
Northern Blazing Star						
	T	S1	G5?T3	2015-10-07	1	Dry barrens (partly forested, upland)
	T	S1	G5?T3	1916-08-10	3	Dry barrens (partly forested, upland)
	T	S1	G5?T3	1934-08-27	4	Dry barrens (partly forested, upland)
	T	S1	G5?T3	1896-09-03	5	Dry barrens (partly forested, upland)
	T	S1	G5?T3	1976-09	8	Dry barrens (partly forested, upland)
Pale Green Orchis						
	SC	S2	G4?T4Q	1935-08-06	24	Non-tidal rivershore (non-forested, seasonally wet),Open
Pitch Pine - Heath Barren						
		S1	G3G5	2017-11-02	2	
Pitch Pine - Scrub Oak Barren						
		S2	G2	2010-11-16	1	
Pitch Pine Bog						
		S2	G3G5	2016-05-20	19	

Pocket Swamp						
	S2	G5	2001-06-26	15		
Prairie Wedge-grass						
PE	SH	G5	1896	2	Dry barrens (partly forested, upland)	
PE	SH	G5	1898-07-18	4	Dry barrens (partly forested, upland)	
Red Maple Swamp						
	S5	G3G5	2002-07-24	3		
	S5	G3G5	2015-07-15	4		
Saltmarsh False-foxglove						
SC	S3	G5	1916-08	7	Tidal wetland (non-forested, wetland)	
SC	S3	G5	1982	8	Tidal wetland (non-forested, wetland)	
Sandplain Grassland						
	S1	GNR	2011	1		
Sassafras						
SC	S2	G5	2007-08-19	7	Hardwood to mixed forest (forest, upland),Old field/	
Scarlet Oak						
E	S1	G5	1916-08	3	Hardwood to mixed forest (forest, upland)	
E	S1	G5	1916-08	4	Hardwood to mixed forest (forest, upland)	
E	S1	G5	1937-06	6	Hardwood to mixed forest (forest, upland)	
Screwstem						
T	S1	G5T3T5	1893-08	3		
Shining Ladies'-tresses						
T	S1	G4	1941	16	Non-tidal rivershore (non-forested, seasonally wet),Open	
Slender Pinweed						
PE	SX	G5	1879	2	Dry barrens (partly forested, upland)	
Small Reed Grass						
SC	S3	G5	2017-12-02	11	Old field/roadside (non-forested, wetland or upland)	
Small Whorled Pogonia						
E	S2	G2G3	2022-06-30	8	Hardwood to mixed forest (forest, upland)	

Smooth Winterberry Holly						
SC	S3	G5	1989-09	1	Forested wetland	
SC	S3	G5	1989-09-26	5	Forested wetland	
SC	S3	G5	1916-08-10	10	Forested wetland	
SC	S3	G5	1936-06-21	12	Forested wetland	
SC	S3	G5	2007-09-21	15	Forested wetland	
SC	S3	G5	2018-08-14	18	Forested wetland	
SC	S3	G5	1989-08-13	19	Forested wetland	
SC	S3	G5	1999-06-10	29	Forested wetland	
SC	S3	G5	2019-06-07	34	Forested wetland	
SC	S3	G5	2017-07-11	37	Forested wetland	
SC	S3	G5	2017-07-26	46	Forested wetland	
SC	S3	G5	2019-10-01	52	Forested wetland	
Spicebush						
SC	S3	G5	1955-05-04	15	Forested wetland	
SC	S3	G5	1936-07-24	16	Forested wetland	
SC	S3	G5	2023-06-28	41	Forested wetland	
Spotted Wintergreen						
T	S2	G5	1984	8	Conifer forest (forest, upland),Hardwood to mixed forest	
T	S2	G5	2006-06-22	12	Conifer forest (forest, upland),Hardwood to mixed forest	
Spreading Sedge						
E	S2	G5	1894-06-09	1	Hardwood to mixed forest (forest, upland)	
Sweet Pepper-bush						
SC	S2	G5	1936-07	7	Hardwood to mixed forest (forest, upland),Forested	
Tiny Lovegrass						
PE	SH	G5	1903-09-05	6	Old field/roadside (non-forested, wetland or upland),Dry	
Unicorn Root						
E	S1	G5	1879	2	Dry barrens (partly forested, upland)	
Upright Bindweed						
T	S2	G4G5	2009-06-11	12	Dry barrens (partly forested, upland),Old field/roadside	

Variable Sedge						
E	S1	G3	1881-06	3	Dry barrens (partly forested, upland),Hardwood to mixed	
Water-plantain Spearwort						
PE	SH	G4	1896-06-13	5	Open water (non-forested, wetland)	
White Vervain						
SC	S1?	G5	1897-09	2	Hardwood to mixed forest (forest, upland),Open wetland,	
SC	S1?	G5	1898-07	3	Hardwood to mixed forest (forest, upland),Open wetland,	
White-topped Aster						
E	S1	G5	2010-08-08	1	Dry barrens (partly forested, upland)	
E	S1	G5	1916-08-10	4	Dry barrens (partly forested, upland)	
Yellow Wild Indigo						
PE	SH	G5	1877	3	Dry barrens (partly forested, upland),Hardwood to mixed	
Yellow-eyed Grass						
E	S1	G4G5	2004-09-06	1	Open wetland, not coastal nor rivershore (non-forested,	

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## Conservation Status Ranks

**State and Global Ranks:** This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
<b>S1</b> <b>G1</b>	<b>Critically Imperiled</b> – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
<b>S2</b> <b>G2</b>	<b>Imperiled</b> – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
<b>S3</b> <b>G3</b>	<b>Vulnerable</b> – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
<b>S4</b> <b>G4</b>	<b>Apparently Secure</b> – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
<b>S5</b> <b>G5</b>	<b>Secure</b> – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
<b>SX</b> <b>GX</b>	<b>Presumed Extinct</b> – Not located despite intensive searches and virtually no likelihood of rediscovery.
<b>SH</b> <b>GH</b>	<b>Possibly Extinct</b> – Known from only historical occurrences but still some hope of rediscovery.
<b>S#S#</b> <b>G#G#</b>	<b>Range Rank</b> – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
<b>SU</b> <b>GU</b>	<b>Unrankable</b> – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
<b>GNR</b> <b>SNR</b>	<b>Unranked</b> – Global or subnational conservation status not yet assessed.
<b>SNA</b> <b>GNA</b>	<b>Not Applicable</b> – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
<b>Qualifier</b>	<b>Definition</b>
<b>S#?</b> <b>G#?</b>	<b>Inexact Numeric Rank</b> – Denotes inexact numeric rank.
<b>Q</b>	<b>Questionable taxonomy that may reduce conservation priority</b> – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
<b>T#</b>	<b>Intraspecific Taxon (trinomial)</b> – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

**State Status:** Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
<b>E</b>	<b>Endangered</b> – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
<b>T</b>	<b>Threatened</b> – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
<b>SC</b>	<b>Special Concern</b> – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
<b>PE</b>	<b>Potentially Extirpated</b> – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

**Element Occurrence (EO) Ranks:** Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
<b>A</b>	<b>Excellent</b> – Excellent estimated viability/ecological integrity.
<b>B</b>	<b>Good</b> – Good estimated viability/ecological integrity.
<b>C</b>	<b>Fair</b> – Fair estimated viability/ecological integrity.
<b>D</b>	<b>Poor</b> – Poor estimated viability/ecological integrity.
<b>E</b>	<b>Extant</b> – Verified extant, but viability/ecological integrity not assessed.
<b>H</b>	<b>Historical</b> – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
<b>X</b>	<b>Extirpated</b> – Documented loss of population/destruction of habitat.
<b>U</b>	<b>Unrankable</b> – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
<b>NR</b>	<b>Not Ranked</b> – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information  
<http://www.maine.gov/dacf/mnap>





JANET T. MILLS  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF  
INLAND FISHERIES & WILDLIFE  
353 WATER STREET  
41 STATE HOUSE STATION  
AUGUSTA ME 04333-0041



JUDITH CAMUSO  
COMMISSIONER

February 4, 2025

Daniel Fefer  
Epsilon Associates, Inc.  
3 Mill & Main Place, Suite 250  
Maynard, MA 01754

**RE: Information Request - Cyro Road, Development, Sanford Project ID 8825-10197**

Dear Daniel:

Per your request received on December 30, 2024, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information sources for known locations of Endangered, Threatened, and Special Concern (Rare) species; designated Essential and Significant Wildlife Habitats; inland fisheries and aquatic habitats; and other protected natural resource concerns within the vicinity of the *Cyro Road, Development, Sanford* project, pursuant to MDIFW's authority. Please note that as project details are lacking, our comments should be considered preliminary. Per the information provided, the project involves the construction of a proposed biosolids gasification facility. For the purposes of this review, we assume that tree clearing is proposed.

Our Department has not mapped any Essential Habitats that would be affected by this project.

***ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES***

Please note that your project is sited in a town designated as a "Turtle Conservation Area." Turtle Conservation Areas are towns which may support one or more turtle species designated as State Endangered, Threatened, or Special Concern. However, based on your project location and/or scope, we anticipate minimal impacts to turtles.

**Bat Species**

Of the eight species of bats that occur in Maine, four species are afforded protection under Maines Endangered Species Act (MESA, 12 M.R.S 12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), eastern small-footed bat (State Threatened), and tri-colored bat (State Threatened). The four remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, and silver-haired bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during spring/fall migration, the summer breeding season, and/or for overwintering. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

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### **Common Gallinule**

The common gallinule has been documented in the vicinity of the proposed project. However, given the site conditions, minimal impacts to this species are anticipated.

### **Northern Black Racer**

The State Endangered northern black racer has been documented in the vicinity of the project area. This species prefers dry, shrubby grasslands, shrub-dominated areas, barrens, recently harvested or open woodlands, and other dry, early successional habitats. Based on review of aerial imagery and localized knowledge, these habitats may be prevalent in the project area. Therefore, we recommend further coordination with MDIFW as site plans are developed.

## ***SIGNIFICANT WILDLIFE HABITAT***

### **Significant Vernal Pools**

At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of Significant Vernal Pools (SVPs) in the project search area. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. SVPs are not included on MDIFW maps until project areas have been surveyed using approved methods and the survey results confirmed. Therefore, their absence from resource maps is not necessarily indicative of an absence on the ground. We recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

## ***AQUATIC RESOURCES***

### **Fish Habitat**

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e., natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be

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effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource and regulatory agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance. For information on federally listed species, contact the U.S. Fish and Wildlife Service's Maine Field Office (207-469-7300, [mainefieldoffice@fws.gov](mailto:mainefieldoffice@fws.gov)).

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



Ciara Wentworth  
Natural Resource Biologist