ESS Group, Inc.

Engineers
Scientists
Consultants

June 9, 2011

Keith DuBois
Brownfields Program Coordinator
Hazardous Waste Remediation Bureau
Waste Management Division
New Hampshire Department of Environmental Services

Re: Berlin BioPower
Parcel 129-54.001, Community Street
Berlin, New Hampshire
NHDES Site Number 201105046
NHDES Project Number 26408
ESS Project Number L168-001

Dear Mr. DuBois:

On behalf of Laidlaw Berlin BioPower, LLC ("LBB"), ESS Group, Inc. ("ESS") is pleased to submit the enclosed revised Soil Management Work Plan (the "Work Plan") to the New Hampshire Department of Environmental Services ("NHDES") for the Berlin BioPower Project in Berlin, New Hampshire (the "Project"). As you requested, the Work Plan has been revised in consideration of your comments provided June 6, 2011. The "redline/strikeout" version of the Work Plan with your comments and ESS' associated edits is also enclosed for your reference.

Thank you again for your assistance with the Department's review of the Work Plan. If you have any questions regarding this submittal, please address them to me at (781) 489-1114 (jwiggin@essgroup.com) and/or Dammon Frecker at (603) 319-4400, Ext. 216.

Sincerely,

ESS GROUP, INC.

Jason Wiggin

Digitally signed by Jason Wiggin
DN: cn=Jason Wiggin, o=ESS Group, Inc., ou, email=jwiggin@essgroup.com, c=US
Date: 2011.06.09 18:47:18 -04'00'

Jason T. Wiggin
Project Manager
Environmental Geosciences & Engineering

William Chapman
Practice Leader
Environmental Geosciences & Engineering

Enclosures

Ec: Dammon Frecker, Cate Street Capital, dfrecker@catecapital.com (without enclosures)

SOIL MANAGEMENT WORK PLAN

BERLIN BIOPOWER
PARCEL 129-54.001
BERLIN, NEW HAMPSHIRE
NHDES SITE NUMBER 201105046
NHDES PROJECT NUMBER 26408

PREPARED FOR

Laidlaw Berlin BioPower, LLC
One Cate Street, Suite 100
Portsmouth, New Hampshire 03801

PREPARED BY

ESS Group, Inc.
888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482

May 2011 (Revised June 9, 2011)

SOIL MANAGEMENT WORK PLAN

Berlin BioPower
Parcel 129-54.001
Berlin, New Hampshire
NHDES Site Number 201105046
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APPENDICES

1.0 INTRODUCTION

This Soil Management Work Plan (the "Work Plan") was prepared by ESS Group, Inc. ("ESS") on behalf of Laidlaw Berlin BioPower, LLC ("LBB") for implementation prior to and/or during excavation and soil management activities associated with construction of the Berlin BioPower Project in Berlin, New Hampshire (the "Project"). This Work Plan, as required pursuant to the Certificate of Site and Facility With Conditions ("the Certificate") issued to the Project by the New Hampshire Site Evaluation Committee ("SEC"), was developed to ensure that soil excavation and management activities are completed in a manner that is protective of human health and the environment and compliant with all applicable state and federal regulations. The Work Plan presents the following information:

1. Project Site information including location, environmental setting, known contaminants of concern, and project overview;
2. Details of the soil excavation activities including anticipated locations/depths and soil volumes;
3. Soil characterization (sampling and analysis) procedures related to in-situ pre-characterization and ex-situ soil stockpile sampling and analysis;
4. Groundwater characterization (sampling and analysis) procedures related to National Pollutant Discharge Elimination System (NPDES) General Permit requirements for groundwater dewatering, if required;
5. New Hampshire Department of Environmental Services (NHDES) Notification requirements;
6. Excavation and soil management and monitoring procedures including field screening of soil for the potential presence of contamination; and
7. General requirements related to field instrument maintenance and calibration, sampling equipment decontamination, record keeping, and health and safety.

2.0 PROJECT DESCRIPTION

LBB is proposing to convert and upgrade much of the remaining facility equipment and infrastructure located at the former Fraser Pulp Mill in order to develop a biomass fueled energy generating facility.

Figure 1 is a Project Locus map and Figure 2 is a Project Site Plan that shows the overall Project Site, including the relative location of the Project's major components (i.e., the "Boiler Island"). Figure 3 illustrates the proposed layout of the Boiler Island's major components. The black liquor recovery boiler currently located at the Site will be converted to a biomass fueled unit. A bubbling fluidized bed (BFB), which represents highly efficient and advanced biomass combustion and power conversion technology, will be installed at the base of the boiler in place of the existing black liquor firing and recovery systems. The footprint of the existing boiler building will be expanded slightly, requiring excavation for the placement of new foundations and footings, primarily along the building's northern side.

The existing electrostatic precipitator (ESP) used to control particulate emissions, and located immediately to the west of the boiler building, will be replaced with a new fabric filter baghouse system. A new selective catalytic reduction (SCR) system will be added to control NOX emissions. Construction of the baghouse will require excavation and placement of new footings along the western side of the boiler building. The SCR system will be placed within a new structure to the south of the boiler building and west of the existing stack. A new structure will be constructed between the SCR structure and the stack to house new boiler exhaust handling equipment (induced draft or "I.D" fan).

Development of the overall Facility will also include construction of a new steam turbine building to the south of the boiler and stack, along with an adjacent Administration Building. A new cooling tower will be installed near the western edge of the property behind the boiler building.

An electric transmission interconnection line will be installed between the site and the existing high voltage transmission line operated by Public Service Company of New Hampshire (PSNH). A small switchyard will be installed adjacent to the new steam turbine building, which will provide necessary power isolation systems and a step up transformer. From the switchyard, an underground transmission cable will be installed first through a new on-site duct bank, and then along the route of an existing underground pipe formerly used to transport pulp from the site to the Fraser Gorham paper mill.

The application approved by the SEC provided for the construction of two wood fuel off-loading and storage areas; one next to the boiler area and one along the northeast end of the site. The approved site plans also provided for the construction of equipment to be installed within a new building in the vicinity of the northeast wood storage area to produce wood chips from whole logs. LBB is not currently proposing to construct the wood chipping building and equipment or the wood yard on the northeast end of the Site, and thus is not including these portions of the Site in the pre-characterization studies presented in the Work Plan. Should LBB elect to develop these approved portions of the Project at a later date, proper soil characterization and management procedures will be implemented consistent with those laid out in the Work Plan.

Construction of the Project will proceed from the western edge of the property toward the east. Detailed design engineering of those structures to be constructed first, which are located in the vicinity of the boiler, have been completed and are the primary focus of this Work Plan. This area is generally referred to as the "Boiler Island" (Figure 3). Construction of the Boiler Island area comprises the major excavation activities associated with the Project. Prior to soil excavation and management work outside the Boiler Island area, the LBB shall review and modify this Work Plan, as necessary, to ensure continued implementation of procedures to protect human health, safety, and the environment and compliance with regulatory requirements.

3.0 PROJECT SITE INFORMATION

The Project Site is located along the northern sides of Community, Coos and Hutchins Streets in Berlin. The Androscoggin River runs along the northwest boundary of the site. The northeast border of the site abuts the remaining portion of the former Fraser Pulp Mill. The Project Site is approximately 62 acres of

land zoned as Industrial/Business, and consists of the southern portion of the property formerly known as the Burgess Mill, Berlin Mill, and most recently the Fraser Pulp Mill.

The Site has a long history of industrial use and development, with many other buildings having been razed and replaced over the years. The original structure constructed on the Site was the Riverside Newsprint Building built in 1891, at which time pulping and papermaking activities began at the Site. The Site continued to be used for pulping operations until September 2001, when operations were temporarily suspended, resuming again in 2003 after the property was purchased by Fraser. The pulp mill permanently closed in May of 2006 and the Site was sold to North American Dismantling Company (NADC), after which the majority of buildings and structures were razed.

3.1 Surrounding Property Use

Current uses of properties adjacent to the Site include industrial, commercial, residential, and open space. The current zoning designations and uses of surrounding properties are summarized below:

Northeast End of the Site – Immediately adjacent to the Site is a vacant tract of land zoned as Industrial/Business, which is part of the former overall pulp mill property. Residential single-family properties exist north of this tract, along with vacant land, and the nearby Mt. Carberry Landfill.

East and Southeast of the Site – Residential and commercial properties exist across Hutchins Street, zoned as Residential Two-family and Single Family.

South of the Site – A park (open space), residential properties, and a few commercial properties are located across Hutchins, Coos, and Community Streets from the Site.

West/Northwest of the Site – The Androscoggin River directly abuts the Site to the west/northwest. The northern end of the Berlin Downtown District is located across the river from the south west end of the site. Several commercial properties are located across the river from the northwest portions of the Site, including a property which was part of the former Burgess Mill and is currently occupied by two buildings. The river is also the site of a hydroelectric dam, penstocks, and a hydroelectric generating station.

3.2 Existing Soil and Groundwater Conditions

Previous environmental investigations identified Project Site soil and groundwater contamination from historic site use. Sources of contamination were identified as (i) incidental spillage and leakage of fuel oils, lubricating oils, hydraulic oils, gasoline, and chemicals related to wood pulping and pulp bleaching (sulfuric acid, phosphoric acid, sodium hydroxide, calcium hydroxide, calcium oxide, hydrogen peroxide), and potential process byproducts; (ii) incidental spillage of oils and solvents used in the maintenance and repair of process equipment; and (iii) on-site disposal of building debris and ash.

Review of soil boring logs (GZA – 2003) indicates that overburden material in the vicinity of the Boiler Island varies in thickness ranging from approximately five to 10 feet and in some locations contains

historic fill described as very loose to very dense, brown to black, fine to coarse sand, some gravel, with varying amounts of silt, wood, and ash. Bedrock beneath the Boiler Island generally slopes in a southern direction away from the Androscoggin River. In areas to the northeast and east of the Boiler Island the overburden thickness is generally less than 15 feet, except for some areas along the Androscoggin River where the overburden is 24 or more feet thick. Historic fill was identified at some locations northeast and east of the Boiler Island at thicknesses ranging from approximately five to 10 feet. Overburden groundwater was observed in site monitoring wells at varying depths dependent upon location. The overburden saturated thickness was observed to be three feet in monitoring well GZ-20, located approximately 100 feet east, and hydraulically upgradient, of the Boiler Island area. In areas northeast and east of the Boiler Island the overburden saturated thickness ranged from four to eight feet.

Soil and groundwater samples collected by GZA in 2003 generally showed relatively low levels of certain polynuclear aromatic hydrocarbons (PAH) and metals. These compounds and locations have been documented as part of previous site investigation activities. No specific remediation activities have been required to allow development of the Project. However, proper soil and groundwater characterization is required to assure proper handling of any potentially contaminated media in locations where construction of the Project will occur.

4.0 ROLES AND RESPONSIBILITIES

The following persons are involved in this Project and will have the following roles and responsibilities:

Owner: The Owner of the project is: Laidlaw Berlin BioPower, LLC
One Cate Street, Suite 100
Portsmouth, NH 03801
Representative for this Work Plan: Dammon M. Frecker
Phone No.: (603) 319-4400 Ext. 216
Email: dfrecker@catecapital.com

The Owner is responsible for overall project implementation. The Owner will procure the services of a Contractor(s) to complete the Project construction including all soil excavation and other activities required for Project completion. It is the Owner's responsibility to ensure that Contractor(s) receive a copy of this Work Plan, and any applicable Project specific authorizations or approvals issued by government agencies, prior to performing excavation and/or soil management work at the Project Site. To the extent practicable, the Owner will seek to implement the soil pre-characterization efforts described in this Work Plan, using qualified Contractor(s), prior to initiation of Project construction activities. The Owner will bear primary responsibility for obtaining any required government approvals or authorizations for Project activities such as stormwater management, soil dewatering and groundwater management, and off-site management of soils, as applicable. The Owner will contract a qualified Environmental Monitor to conduct the oversight and reporting tasks summarized below.

Contractor(s): The Contractor(s) will furnish all labor, equipment and materials required for Project construction, including but not limited to, soil and groundwater characterization; proper soil management (including excavation, dewatering, segregating and stockpiling, loading, off-site transportation and

disposal, as required); dust control; and groundwater management as outlined in this Work Plan. Contractor(s) will also be responsible for the design and implementation of proper erosion and sedimentation control measures, stormwater management procedures, soil dewatering systems and groundwater management procedures, consistent with commonly accepted Best Management Practices and requirements set forth in any applicable government approvals or authorizations. Contractor(s) will be responsible for providing information regarding equipment design and operating procedures related to project construction activities as necessary for Owner to obtain any required government approvals or authorizations, and maintaining proper documentation to demonstrate compliance with applicable regulations, approvals and authorizations.

Environmental Monitor: The Environmental Monitor shall be responsible for overseeing the soil excavation and management activities described in this Work Plan to verify that they are performed in accordance with the procedures set forth in this Work Plan and applicable NHDES requirements. Specifically, the Environmental Monitor's role will include, but may not be limited to, review of soil and groundwater characterization data, supervision of ex-situ soil characterization, observation of all excavations and soil management activities (including segregation, stockpiling, loading, off-Site transportation, dewatering, and decontamination activities), perform field screening of excavated soils, and submit requisite reports required by the NHDES to document these activities.

NHDES: The NHDES is the regulatory agency responsible for approval of this Work Plan and for enforcing applicable State of New Hampshire environmental regulations that pertain to the Project. The NHDES contact person is:

H. Keith DuBois, P.G.
Hazardous Waste Remediation Bureau
New Hampshire Department of Environmental Services
Portsmouth, NH 03801
Phone No.: (603) 271-2987
Email: Keith.DuBois@des.nh.gov

5.0 PROPOSED EXCAVATIONS

Excavation of potentially contaminated soil will be performed during foundation installations for the new Boiler Island structures. The layout of the Boiler Island is shown on the plan entitled *Boiler Island Preliminary Foundation Location Plan* prepared by Stantec and Babcock and Wilcox Construction Co., dated April 8, 2011 (Appendix A). As noted on the plan, existing soil within the footprint of the Boiler Island structures will be excavated to bedrock and will be backfilled with structural fill, flowable fill or concrete. ESS calculated the estimated soil excavation volumes for each new structure based on the proposed dimensions provided on the foundation location plan. The excavation depths for each location were determined by taking the difference between the ground surface elevation, as determined from the existing conditions survey that was included with the SEC filing, and the bedrock surface elevations, as determined from the bedrock surface contours provided on "Figure 17 – Interpretive Bedrock Contour Plan 1" from a geotechnical investigation conducted in 1989 in support of construction of new buildings in

Boiler Island area[1] and "Figure 6 – Bedrock Elevation Contour Plan" from a 2003 hydrogeologic investigation report[2]. These figures/plans are provided in Appendix A for reference.

The dimensions, estimated depths and volumes of soil to be excavated for each new structure are presented in Table 1. As shown in Table 1, a total of approximately 17,000 cubic yards or 25,000 tons of soil will be excavated for installation of the Boiler Island structures.

6.0 SOIL CHARACTERIZATION

Soil managed as part of construction activities shall be sampled and analyzed to determine if it contains regulated levels of contaminants. It is anticipated that some portion, if not all, soil characterization for construction in the vicinity of the Boiler Island will be completed in-situ prior to excavation (i.e., pre-characterized). Any soils not fully characterized prior to excavation will be sampled from stockpiles following excavation and properly characterized prior to disposition. The procedures for both types of sampling are described in the following sections. Soil sampling and analysis shall be performed pursuant to NHDES Env-Or 611.04 for soil destined for on-site reuse and/or off-site management. Soil samples shall be analyzed for parameters listed below by a laboratory accredited under the National Environmental Laboratory Accreditation Conference (NELAC) standards and have their own quality assurance manual and standard operating procedures (SOPs) that meet the NELAC standards. These parameters were selected to meet typical off-site soil management facility requirements and include those analytes that are known to exist near the Boiler Island at concentrations greater than NHDES Soil Remediation Standards, namely metals and PAH. Samples shall be analyzed using current methodologies pursuant to SW 846 – *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.*

Soil Analytical Parameters

- Flashpoint by EPA Method 1010
- pH by EPA Method 9045
- Polychlorinated Biphenyls (PCB) by EPA Method 8082
- Resource Conservation and Recovery Act Eight (RCRA-8) Metals by EPA Methods 6000/7000
- RCRA-Herbicides by EPA Method 8151A**
- RCRA-Pesticides by EPA Method 8081A**
- Reactive Cyanide and Sulfide by EPA Method 7.3
- Semi-Volatile Organic Compounds (SVOC) by EPA Method 8270C
- Specific Conductance EPA Method 9050
- Total Petroleum Hydrocarbons (Diesel Range Organics) by EPA Method 8015B-DRO

[1] "Preliminary Geotechnical Investigation, Proposed Pulp Mill Expansion, Burgess Mill, Berlin, NH, James River Corporation", Jordan Gorrill Associates, August, 1989.
[2] "Phase II Hydrogeologic Investigation, Burgess Pulp Mill and Cascade Paper Mill, Berlin and Gorham, New Hampshire", GZA GeoEnvironmental, Inc., December 2003.

- Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311
- Volatile Organic Compounds (VOC) (high and low-level) by EPA Method 8260B/5035

**Initially, only one out of every five soil samples shall be analyzed for pesticides and herbicides. Additional sample analysis for pesticides and/or herbicides shall be required if initial sample analyses indicate pesticides and/or herbicides are present and/or based on soil receiving facility requirements.

Soil samples shall be collected using disposable and/or decontaminated sampling equipment. Soil shall be placed in laboratory-provided clean sampling containers. As appropriate, sample preservatives (e.g., methanol) shall be added by the laboratory prior to container delivery. VOC samples shall not be homogenized, shall be collected with plastic soil syringes, and shall be placed in volatile organic analysis (VOA) vials as soon as practicable following retrieval of soil from the subsurface. A field scale shall be used to weigh soil placed into VOA vials to achieve the laboratory-recommended ratios of soil to preservative. Sample containers shall be placed on ice and maintained at or below six degrees Celsius until delivery to the laboratory within method-specified holding times. Samples shall be maintained and transported under standard chain-of-custody protocols.

6.1 In-situ Soil Sampling Protocols

Representative in-situ soil samples shall be collected from each proposed excavation area in accordance with the requirements of the New Hampshire Code of Administrative Rules, Chapter Env-Or 611.04 - *Contaminated Soil Sampling*. These requirements specify the following:

1) At least one boring/test pit shall be completed for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one boring/test pit for every 500 tons above the initial 2,000 tons;

2) The borings/test pits required by (1), above, shall be completed on an evenly-spaced grid pattern throughout the contaminated soil area. Using the formula specified by item (1), above, and the rationale discussed below, the resultant grid spacing for the Boiler Island excavation areas averages approximately 27 feet. The grid spacing varies for each proposed excavation area based on the estimated depths of excavation and volume of soil to be characterized;

3) When appropriate, at least one boring/test pit shall be located in the most contaminated soil area. The most contaminated area will be identified using field observations (e.g., PID, visual/olfactory) as described in Section 9.3. This provision shall not apply for soil pre-characterization sampling because the most contaminated soil area will not be known;

4) At least one soil sample shall be collected from the contaminated zone of each boring/test pit required by (1) through (3), above.

For the purpose of number 4, above, the presence of historic fill materials (e.g., ash/cinders, bark, paint chips, painted masonry debris, or other debris) shall be an indication of a “contaminated zone” absent other contaminated zone indicators such as elevated photo-ionization detector (PID) readings, staining, and/or odors. Samples collected from borings with no apparent contaminated zone shall be

representative of the stratigraphy encountered in the boring. If more than one discernable stratigraphic layer is encountered in a boring with no apparent contaminated zone, one or more of the stratigraphic layers shall be selected for sampling. Under these circumstances samples shall generally be collected from the upper-most stratigraphic layer. To the extent practicable, each stratigraphic layer encountered during pre-characterization sampling shall be sampled at least once unless the presence of a contaminated zone(s) or the proposed extent of excavation dictates otherwise.

Using these requirements, ESS determined that a minimum of 56 soil borings will be required to characterize the 25,000 tons of soil to be excavated from the footprint of the Boiler Island structures [i.e., 2,000 tons x one boring/200 tons + 23,000 tons x one boring/500 tons = 56 borings]. Because it is not known from where the initial 2,000 tons of soil will be excavated, ESS calculated the overall boring frequency for the project of one boring for every 446 tons of soil (25,000 tons / 56 borings = 446 tons/boring). ESS then used this overall boring frequency to determine the number of soil borings needed to characterize each planned excavation area, which are also listed in Table 1. The soil pre-characterization sampling locations are shown on Figure 3. The final locations, depths, and quantity of soil borings (and soil samples) are subject to change based on actual field conditions encountered. The number of soil borings (and soil samples) may be increased or decreased based on the actual thickness of overburden material encountered during the soil boring program.

As shown on Figure 3, concrete pads exist within some of the proposed foundations (SCR, Admin Building, Turbine Building). These concrete pads are reported to be three or more feet thick. Soil borings will not be advanced through existing concrete pads. It is anticipated the concrete pads will be managed separately as non-impacted media and, as such, the estimated volume of soil to be excavated from the footprint of the Boiler Island structures and the number of borings/samples required to characterize the soil takes into account this volume of concrete.

As a result of addressing each structure/excavation area separately, the total number of borings planned for the Boiler Island is 60, four more than required to characterize the estimated 25,000 tons of soil. This is appropriate because the soil volume may increase based on the need to provide sloping and shoring during foundation excavations. In addition, some of the subsurface utility trench excavations that will be completed in the Boiler Island area are not accounted for on Table 1 because they represent a relatively small volume of soil and exact locations are not currently known. To the extent practicable, the locations of proposed subsurface utility locations will be known prior to soil pre-characterization.

It is anticipated that soil borings will be advanced using direct-push drilling and sampling techniques (i.e., GeoProbe) to the depth of the anticipated excavation, or to bedrock, whichever is encountered first. As shown in Table 1, the maximum anticipated excavation depth is 10 feet. During borehole advancement, each soil sample will be screened using a PID and a jar headspace screening procedure to evaluate the potential presence of VOC in the soil, and will undergo visual and olfactory inspections for other evidence of contamination. Soil descriptions and other field observations will be recorded on soil boring logs to document subsurface soil conditions for future reference.

The locations of completed soil borings (and monitoring wells as required per Section 7.0 herein) shall be recorded in the field during the soil pre-characterization program by means of global positioning system (GPS), tape survey to existing structures, and/or licensed land surveyor. The as-built boring locations shall be incorporated into Project plans. As-built boring location plans and/or associated excavation plans, along with analytical results from each boring will be provided to the Contractor and Environmental Monitor to facilitate understanding of existing conditions and communication during soil excavation.

6.2 Ex-situ Stockpile Sampling Protocols

If additional soil characterization is deemed necessary, based on an increase in the volume of soil excavated or if contamination encountered during excavation significantly varies from what was observed during the soil pre-characterization program, representative soil stockpile samples shall be collected in accordance with the following criteria as specified in Env-Or 611.04:

1) At least one composite sample shall be collected for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one composite sample for every 500 tons above the initial 2,000 tons;

2) Each composite sample shall consist of at least 8 discrete samples collected from the stockpile; and

3) Each discrete sample shall be taken from newly exposed soil a minimum of 12 inches deep within the stockpile and combined with the other required discrete samples to complete each composite sample.

7.0 GROUNDWATER CHARACTERIZATION

Excavation dewatering may be required in order to perform excavation work "in-the-dry" and generate soil suitable for management (i.e., no free liquids). If necessary, excavation dewatering and associated groundwater management would be conducted under a NPDES Remediation General Permit (RGP). To determine the chemical quality of groundwater that may need to be managed, up to two overburden groundwater monitoring wells shall be installed, developed, and sampled in conjunction with the Soil In-situ Pre-characterization Program. The well locations shall be as follows: one in the area of the proposed Cooling Tower Basin and one in the area of the Turbine Hall Building and Turbine. These locations were selected because they are in areas where deeper excavations are proposed and the likelihood of encountering groundwater is greater. As appropriate and based on field observations, the wells shall be installed in locations where contamination is suspected so that groundwater samples adequately represent contaminated groundwater that may be dewatered. These wells may be monitored prior to excavation activities to determine the level of groundwater dewatering that may be required.

New wells shall be designed, installed, developed, and maintained in accordance with We-600 "Standards for the Construction, Maintenance, and Abandonment of Wells." Each well shall be allowed to equilibrate a minimum of two weeks following installation prior to sampling.

Historic site plans show that monitoring wells were installed within the Boiler Island area. Existing monitoring wells that are discovered within the Boiler Island area shall be gauged for depth-to-water and depth-to-bottom and, to the extent possible, well construction documentation shall be obtained. Existing overburden wells may be used for groundwater characterization in lieu of newly installed wells as long as the existing wells are in comparable locations, not installed into bedrock, are in good repair, and are developed prior to sampling.

Wells shall be sampled using low-flow purging and sampling procedures with disposable and/or decontaminated sampling equipment. A fiberglass measuring tape or other accurate measuring device shall be used when measuring and installing tubing into wells. Purge water shall be monitored with an instrument that measures temperature, pH, dissolved oxygen, specific conductance, and oxidation/reduction potential (ORP) and the probe readings for pH, dissolved oxygen, and specific conductance are automatically corrected for temperature; such as the YSI Models 556, 600XL, 600XLM, or equivalent. Turbidity must be taken with a separate meter (such as the LaMotte 2020 turbidity meter, or equivalent). The instrument must be equipped with a flow-through-cell with a maximum capacity of 250 milliliters and the display/logger or computer display screen needs to be large enough to simultaneously contain the readouts of each probe in the instrument. Turbidity must be taken at a point before the flow-through cell and from a meter separate from the flow through cell apparatus. A three way stopcock is recommended to divert sample flow for the turbidity reading. Turbidity cannot be measured in a flow-through-cell because the flow through-cell acts as a sediment trap.

Groundwater samples shall be analyzed for parameters specified in *Appendix III - Effluent Limits and Monitoring Requirements (Category III – Contaminated Construction Dewatering)* of the RGP using the analytical methods established in *Appendix VI - Test Methods and Minimum Levels for Pollutants Covered by the RGP* of the RGP.

8.0 NOTIFICATION REQUIREMENTS

The soil and groundwater analytical data shall be compared to the NHDES Soil Remediation Standards and Ambient Groundwater Quality Standards, respectively. An exceedance of one or more of these standards shall require notification to the NHDES within 60 days of obtaining knowledge of the exceedance, pursuant to Env-Or 604 – Notification. The NHDES and the EPA Region 1 PCBs Coordinator shall be notified immediately upon receipt of soil PCB analytical results indicating the presence of PCB at a total concentration greater than 1 mg/kg. During site characterization and excavation monitoring, field observations shall also be subject to the additional reporting requirements under Env-Or 604 (e.g., NAPL Notification and Discharges of Oil Requiring Immediate Notification).

Following receipt of pre-characterization analytical data the Owner anticipates that a meeting will be scheduled with NHDES to discuss the findings and how they relate to site redevelopment.

In addition to the notification requirements stated above, certain other NHDES notification requirements may apply to excavation activities as specified in the *Alteration of Terrain Bureau Recommended Permit Conditions* attached to the Certificate.

9.0 EXCAVATION MONITORING

During excavation, the Environmental Monitor will be on-site to supervise the excavation and management of contaminated soils. The excavated contaminated soil shall be managed in accordance with applicable local, state, and federal requirements and in a manner that protects human health, safety, and the environment, as further discussed in Sections 9.1 through 9.7 herein. The following soil excavation and management procedures shall be followed during earthwork activities.

9.1 Site Setup

Physical barriers, such as temporary fencing, shall be constructed to prohibit access to the work area by unauthorized persons, and the barriers shall be maintained so that they effectively prohibit such access for the duration of the work.

Erosion control measures shall be employed, as needed, to prevent the runoff of soil from the work area. Erosion control measures will include staked hay bales and/or plastic membrane (silt fence) to control migration/erosion of exposed contaminated soil from the work area for the duration of the work. The locations and details for erosion control measures will be detailed in a Storm Water Pollution Prevention Plan required under the NPDES General Permit for Construction Activities. Catch basins located within the work area shall be lined with filter-fabric and hay bales shall be installed at the ground surface around each catch basin to prevent contaminated soil migration into the catch basins. Catch basins that are lined with filter materials shall be continually maintained during construction to prevent the building up sediment and subsequent flooding of the work area.

Temporary on-Site soil stockpiling areas and decontamination areas will be established prior to initiating any excavation activities. The temporary soil stockpile areas shall consist of a base of a minimum of 6-mil thick polyethylene sheeting, or equivalent suitable impervious material and shall be surrounded by a single row of hay bales to prevent migration of potentially contaminated stockpiled soil to other portions of the Site via storm run-off. The temporary soil stockpile areas and decontamination areas shall be visibly marked with appropriate signage warning of potential hazards. The condition of the soil stockpile polyethylene cover and hay bale berm shall be inspected daily for integrity and shall be replaced/repaired immediately during the entire time that soils are stockpiled on the site. Inspection/repair logs for the soil cover and hay bale berm shall maintained at the site and made available to NHDES personnel upon request.

9.2 Soil Excavation

Soil excavation shall be performed in accordance with generally accepted excavation/construction practices and all applicable requirements of the Occupational Safety and Health Administration (OSHA).

Excavation work shall be conducted in a manner that limits the mixing of materials containing different levels and types of contamination to the highest degree possible, and which minimizes the uncontrolled migration of soil to areas outside of the work area.

The Environmental Monitor shall keep daily logs and notes describing in detail the excavation activities for each soil/excavation area, including native soils. Notes shall include, but not be limited to, the amounts of soil excavated from each contaminated soil/excavation area, field headspace screening and sampling locations and depths, site plans and/or sketches showing underground utility lines and pertinent surficial features, and ambient air/breathing zone PID screening results, as appropriate.

All equipment used during the excavation of contaminated soil shall be properly decontaminated prior to use and after each designated contaminated soil area is excavated (prior to moving to the next contaminated soil area).

Opened excavations shall be adequately protected at the end of each work day to prevent the off-site distribution and migration of contaminated dust/particulates, as discussed further in Section 9.6. Such protective measures may include, but are not limited to, covering and securing exposed contaminated soils with polyethylene sheeting of minimum 6-mil thickness, or equivalent suitable impervious material. Excavations that must be left opened overnight shall be secured using appropriate means, including but not necessarily limited to, construction fencing, caution tape and/or placing steel plates over the excavation prior to leaving the Project Site for the day.

Soil and fill beneath the encountered water table shall not be excavated until dewatering of the excavation area(s) is complete, if necessary, pursuant to the NPDES RGP that will be obtained.

9.3 Soil Segregation and Stockpiling

The Environmental Monitor shall perform on-site soil screening during excavation to segregate contaminated soils based on relative levels of contamination. Soil screening shall be performed using visual and olfactory evaluations, a PID, and using knowledge obtained form the in-situ soil pre-characterization program (see Section 6.0 of this Work Plan).

Visual and olfactory evidence of contamination may include staining, the presence of non-aqueous phase liquids (NAPLs), the presence of non-soil fill materials (e.g., ash/cinders, bark, paint chips, painted masonry debris, or other debris), and/or unusual odors.

Soil screening using a PID shall be conducted following a headspace screening procedure. Excavated soils exhibiting headspace readings greater than 10 parts per million by volume (ppmv) shall be stockpiled separately from soils with headspace readings less than 10 ppmv. The threshold of 10 ppmv may be modified based on the results of soil pre-characterization.

Soils containing apparent paint chips and painted debris fragments shall be segregated for separate waste characterization and disposal. Soils containing PCB shall be segregated from other soils. Further, soils containing PCBs at total concentrations >50 mg/kg shall be segregated from all other soils.

Soils that contain NAPL or other overt evidence of contamination that is not consistent with soil pre-characterization results shall be segregated from other excavated soil and shall be characterized and

transported off-Site for recycling and/or disposal in accordance with the requirements of Section 6.0 of this Work Plan and/or as directed by NHDES. If NAPL is encountered during excavation activities, immediate notification will be provided to NHDES in accordance with Env-Or 604, and as described in Section 8.0 of this Work Plan.

Unsuitable fill material such as broken pavement, building debris, wood, metal, concrete, shall be separated from soil materials and stockpiled separately. These materials may require off-Site disposal as construction debris. Painted masonry debris and painted building materials shall not be reused at the site. These materials will be stockpiled separately and shall be disposed of at a properly permitted facility following waste characterization analyses. Said analyses shall include RCRA metals and PCBs. Non-painted masonry materials free of tiles and adhesives may be crushed and stockpiled for on-site beneficial reuse.

Pursuant to Env-Or 611.05, excavated contaminated soils shall be stockpiled in pre-designated, temporary stockpile storage areas on a minimum of 6-mil thick polyethylene sheeting, or equivalent suitable impervious material. Contaminated stockpiled materials shall be graded to shed water and shall be covered prior to inclement weather, at the end of each work day, and/or during periods of prolonged inactivity with a minimum 6-mil thick polyethylene (or equivalent suitable impervious material) overlapped and weighted to form a continuous waterproof barrier over the material. The cover shall be maintained throughout the stockpile period to control water entering the stockpiled materials and to limit dust generation. The contaminated soil pile shall only be uncovered when contaminated soil is being added to or removed from the pile. Public access to the contaminated soil pile storage area shall be restricted.

All excavated stockpiled soils shall be reused on site, if appropriate, or shall be characterized and transported off-site to an appropriate permitted disposal facility within four months, pursuant to Env-Or 611.05. Excavated stockpiled soils shall not be transported for off-site disposal for fill or any other use at uncontrolled properties that are not permitted to accept soil for disposal.

9.4 Re-Use of Excavated Soils

Stockpiled soil that meets the standards set forth in Table 600-2 of Env-Or 606.19 may be reused on-site as backfill materials to the extent possible. Based on the results of the in-situ soil pre-characterization sampling, site specific soil reuse standards may be developed for this project, in accordance with Env-Or 606.19(c). Any site specific standards developed for this project will be provided to NHDES for review and approval prior to their use.

Excavated soil that cannot be reused as backfill will remain stockpiled onsite until it is properly characterized for off-site transportation and treatment or disposal at an appropriate facility.

9.5 Soil Transportation and Off-Site Management

Contaminated soil that cannot be re-used on site due to contaminant concentrations, geotechnical specifications and/or on-site re-use capacity shall be properly characterized prior to being transported off-site for treatment and/or disposal. To the extent possible, the laboratory data obtained from the

soil pre-characterization program described in Section 6.0 of this Work Plan will be used to characterize the stockpiled soil, however, additional laboratory analytical data may be needed in some cases based on the volume of soil requiring disposal.

The amount and type of laboratory analytical data required to properly characterize soil varies depending on the facility. In accordance with Env-611-04(a), the minimum sampling requirements for off-site disposal of stockpiled soil shall be as follows:

1) At least one composite sample shall be collected for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one composite sample for every 500 tons above the initial 2,000 tons;

2) Each composite sample shall consist of at least 8 discrete samples collected from the stockpile; and

3) Each discrete sample shall be taken from newly exposed soil a minimum of 12 inches deep within the stockpile and combined with the other required discrete samples to complete each composite sample.

The analytical parameters required for off-Site re-use, recycling or disposal vary by facility and may include all or some of the parameters listed in Section 6.0. The soil analytical data will be compared to off-Site facility acceptance criteria (i.e., in-state and out-of-state landfills).

The transporter shall have all New Hampshire licenses, permits, etc. required to transport the soil off-site and fulfill all other out-of-state requirements if the soil is transported out of New Hampshire. When transported upon public roadways, all soils shall be covered to minimize fugitive dust. All soil transported from the Project Site shall be handled in accordance with applicable local, state, and federal regulations and standards.

9.6 Dust Control and Monitoring

On-site dust control techniques will be implemented during excavation to control the generation of dust and protect on-site workers and surrounding populations from exposure to on-site contamination through the inhalation of fugitive dust emissions. Dust control techniques will include but may not be limited to use of one or more of the following measures. Note that some of these measures are **required.**

- Limit areas of ground/soil disturbance to only those areas necessary for completion of the work [as necessary].
- Wet soils and soil stockpiles frequently during excavation to suppress dust generation [as necessary].
- Cover excavation areas with poly sheeting during periods of prolonged inactivity and at the end of each work day [as necessary].

- Cover soil stockpiles with poly sheeting during periods of prolonged inactivity and at the end of each work day (refer to Section 9.1) **[required]**.

- Construct and maintain a temporary gravel construction entrance long enough to accommodate all equipment and vehicles that will enter the site and equal to the width of the proposed site entrance(s). The construction entrance shall be made of adequately sized stone and maintained by the Contractor in a condition that will prevent tracking or flowing of sediment onto the public right-of-ways. Geotextile fabric shall be placed over the entire area prior to placing of stone. All sediment spilled, dropped, washed, or tracked onto roadways will be removed and managed appropriately (i.e., with site soils or characterized and managed separately) **[required]**.

- Decontaminate vehicles, equipment, and appurtenances prior to leaving the site. The temporary gravel construction entrance shall serve as the decontamination area. Sediment shall be removed from tires, tracks, undercarriage, and other areas where accumulation occurs **[required].**

- Additional decontamination procedures will be required if total PCB concentrations above 1 mg/kg are detected. In such case, this Work Plan will be updated appropriately.

- Slowing or stopping work if ambient dust monitoring indicates that action levels have been exceeded **[required]**. The minimum action level shall be visible dust. More stringent and quantitative action levels may be developed based on pre-characterization soil analytical data and a Focused Risk Characterization. This Work Plan and site-specific HASP(s) will be updated to include said quantitative action levels, if required.

The need for a dust monitoring program will be evaluated based on the analytical results of soil pre-characterization and a subsequent Focused Risk Characterization. If required, the Environmental Monitor shall implement a dust monitoring program during excavation activities that involve contaminated soil. Dust monitoring shall be performed using real-time aerosol monitors, such as MIE DataRAM Aerosol Monitors equipped with MIE Omnidirectional Sampling Inlets and MIE PM10 Sampling Heads, DUSTTRACK 8250, or equivalent. Dust monitoring stations will be established at upwind and downwind locations of the excavation areas. The monitors will be properly calibrated prior to use and programmed to take dust readings at regularly established intervals (e.g., every five minutes). Dust monitor readings will be observed and recorded at the beginning and mid-point of each work day, and the continuous monitoring data will be downloaded at the end of each work day. The dust readings will be used to evaluate the effectiveness of the dust suppression techniques and whether or not additional dust suppression techniques should be implemented.

Dust emissions from construction activities (i.e., soil/fill excavation actions) will be considered acceptable if the difference between upwind and downwind concentrations is less than the action level. If the difference between upwind and downwind concentrations exceeds the action level then appropriate dust control measures shall be implemented to rectify the condition.

9.7 Groundwater Dewatering

In areas where proposed soil excavation will require groundwater dewatering, contaminated groundwater will be pumped from the excavation and treated on-site prior to being discharged to the Androscoggin River under a NPDES RGP. Groundwater treatment will include a mobile treatment system consisting of an oil water separator/flow equalization tank followed by granular activated carbon treatment tanks and/or particulate filtration, as necessary. Treatment system sampling will be performed in accordance with the NPDES RGP requirements.

10.0 FIELD INSTRUMENT CALIBRATION AND MAINTENANCE

All instrumentation necessary for field monitoring and health and safety purposes shall be maintained, calibrated, tested and inspected according to the manufacturers' instructions. Copies of the operating instruction manuals and calibration procedures shall be kept with the equipment. Any manufacturer-provided repair kits shall be kept on-site for the duration of equipment use.

At a minimum, instrument calibration and/or calibration checks shall be conducted at the beginning of each day of use at the Site. Calibration shall be checked to ensure the instrument was calibrated properly. If the calibration check indicates the instrument is operating within acceptable limits (e.g., PID reading between 95 and 105 ppmv when checked with 100 ppmv isobutylene span gas) then it may be used without re-calibrating. Equipment calibration acceptance criteria shall be +/-5 percent, unless otherwise specified by the equipment manufacturer. In addition to pre-work calibration, PID calibration shall be checked half-way through the day and again at the end of the day to ensure that the PID has remained in calibration throughout the day.

Should any erratic or illogical readings occur between calibrations, the instrument shall be recalibrated in order to ensure that representative measurements are obtained. All calibration, check values, and maintenance activities shall be documented on a calibration log in a manner that is traceable to the equipment (i.e., make, model, and serial numbers).

11.0 RECORD-KEEPING AND REPORTING

The Environmental Monitor shall be responsible for maintaining field log books and/or pre-printed field work sheets/logs to accurately document all field activities: on-site conditions, field screening/monitoring and sample collection information, field instrument and calibration information, global positioning system (GPS) or other survey information/coordinates, and any other pertinent site-related information observed during soil and groundwater characterization, soil excavation, segregation, on-site stockpiling, monitoring, and off-site management activities conducted as part of the proposed excavations. More specifically and related to excavation monitoring, these records shall include, but not be limited to, the following:

- The location and depth of intrusive activity for each soil/excavation area, including site plans and/or sketches showing underground utility lines, sampling locations, and pertinent surficial features;
- The quantity of soil excavated from each soil/excavation area and where the soil is temporarily stockpiled and/or transported;

- Off-site soil management information including daily volumes (quantity and size of trucks), tractor/trailer identification information, time of truck departures from the site;
- The company/persons and type of equipment conducting the work; and
- Details related to problems, difficulties, and/or unexpected conditions encountered.

Additional documents that shall be maintained by the Environmental Monitor include, but may not be limited to, the following:

- Copies of any shipping documents (e.g., manifests, bill-of-lading) for soils brought on-site and/or transported from the Site; and
- Copies of all laboratory analyses of soil brought on-site and/or transported from off-site.

Field notes/logs shall be recorded in permanent ink (black ink is preferred, red ink is not acceptable). Any corrections to the logbook or other written documentation shall be initialed and dated. All corrections shall be shown as a single line through the original. The unused bottom portion of each page shall be lined-out, initialed, and dated.

12.0 HEALTH AND SAFETY REQUIREMENTS

The Contractor(s) and Environmental Monitor shall develop Project Site-specific Health and Safety Plans (HASPs) that will be followed by workers during soil and groundwater characterization, soil excavation, and on-site soil management activities during construction. The HASPs will summarize potential constituents of concern at the Project Site and describe appropriate protective measures to be followed during work at the Project Site. The plans will require that all on-site workers have the appropriate levels of training for the specific tasks being performed.

During development of the HASPs, consideration will be given to current safety standards as defined by the United States Environmental Protection Agency (USEPA), the Occupational Safety and Health Administration (OSHA) or the National Institute of Occupational Safety and Health (NIOSH), health effects and standards for known constituents of concern, and procedures designed to account for the potential for exposure to unknown substances. Available resources for these standards include but are not necessarily limited to:

- OSHA 29 CFR 1910.120 and USEPA 40 CFR 311;
- OSHA 29 CFR 1910 Subparts I and Z;
- USEPA, Office of Emergency and Remedial Response (OERR) Emergency Response Team (ERT) Standard Operating Safety Guides;
- NIOSH/OSHA/U.S. Coast Guard (USCG)/USEPA Occupational Health and Safety Guidelines; and
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

13.0 REFERENCES

GZA GeoEnvironmental, Inc., Phase II Hydrogeologic Investigation, Burgess Pulp Mill and Cascade Paper Mill, Berlin and Gorham, New Hampshire, December 2003.

Jordan Gorrill Associates, Preliminary Geotechnical Investigation, Proposed Pulp Mill Expansion, Burgess Mill, Berlin, NH, James River Corporation, August, 1989.

New Hampshire Code of Environmental Rules, Chapter Env-Or 600 – Contaminated Site Management.

New Hampshire Department of Environmental Services, Field Sampling Procedures Guidance Manual, October 2001 (Revised).

New Hampshire Department of Environmental Services, Master Quality Assurance Project Plan Of The Hazardous Waste Remediation Bureau, Waste Management Division, Revision #4, January 2011).

Tables

TABLE 1
ESTIMATED SOIL EXCAVATION VOLUMES AND SOIL BORING REQUIREMENTS
BOILER ISLAND AREA
Laidlaw Berlin Biopower Biomass Energy Facility, Berlin, New Hampshire

	Excavation / Structure Location	Structure Footprint Length (Feet)	Structure Footprint Width (Feet)	Estimated Ground Elevation	Estimated Bedrock Elevation	Footprint Excav. Depth (Feet)	Footprint Volume (CY)	Footprint Mass (Ton)	# Borings Per Structure
1	Cooling Tower Basin	165	51	1,050	1,040	10	3,117	4,675	11
2	Cooling Tower Sump	55	39	1,046	1,036	10	794	1,192	3
3	Electrical Building (near cooling tower)	25	13	1,050	1,044	6	72	108	1
4	Unloading Area and Containment	58	46	1,050	1,045	5	494	741	2
5	Sorbent Silo	18	18	1,050	1,045	5	60	90	1
6	Fabric Filter and Boiler Building Support Structures	440	10	1,050	1,042	8	1,304	1,956	5
7	SCR	55	50	1,048	1,040	8	815	1,222	3
8	I.D. Fan Building	67	46	1,045	1,035	10	1,077	1,615	4
9	Admin Building	95	45	1,042	1,035	7	831	1,247	3
10	Turbine Hall Building	133	116	1,040	1,030	10	5,185	7,777	18
11	Electrical Building (near turbine)	54	24	1,040	1,030	10	480	720	2
12	Transformer Yard	72	54	1,040	1,030	10	1,440	2,160	5
13	Cooling Water Pipe Trench	250	10	1,044	--	6	556	833	2
					Total Soil Volume:		**17,000**	**25,000**	
					Total Number of Borings Required:			**56**	60
					Overall boring Frequency (1 boring / tons soil):			**446**	

Notes and Assumptions:

(1) Excavation locations 1 through 12 derived from "Boiler Island Preliminary Foundation Location Plan" by Babcock & Wilcox Construction Co., Inc. dated 4/8/11.

(2) Structure Footprint dimensions rounded up to nearest foot

(3) 'Footprint Volume' for excavations 8, 9, and 10 consider existing concrete slabs located within proposed footprint.

(4) Excavation location 13 (Cooling Water Pipe Trench) estimated based on known project requirement.

(5) Existing soil will be removed to depth of bedrock at all new foundation locations (excludes Cooling Water Pipe Trench) (i.e., bedrock elevation = bottom of excavation elevation).

(6) 'Estimated Ground Elevation' extrapolated from Figure 2 (Site and Subsurface Exploration Plan) from "Phase II Hydrogeologic Investigation Report, Burgess Mill (GZA, 2003).

(7) 'Estimated Bedrock Elevation' extrapolated from Figure 17 (Interpretive Bedrock Contour Plan 1) from a 1989 geotech investigation prepared by Jordan Gorrill Associates and Figure 6 (Bedrock Elevation Contour Plan) from "Phase II Hydrogeologic Investigation Report, Burgess Mill (GZA, 2003).

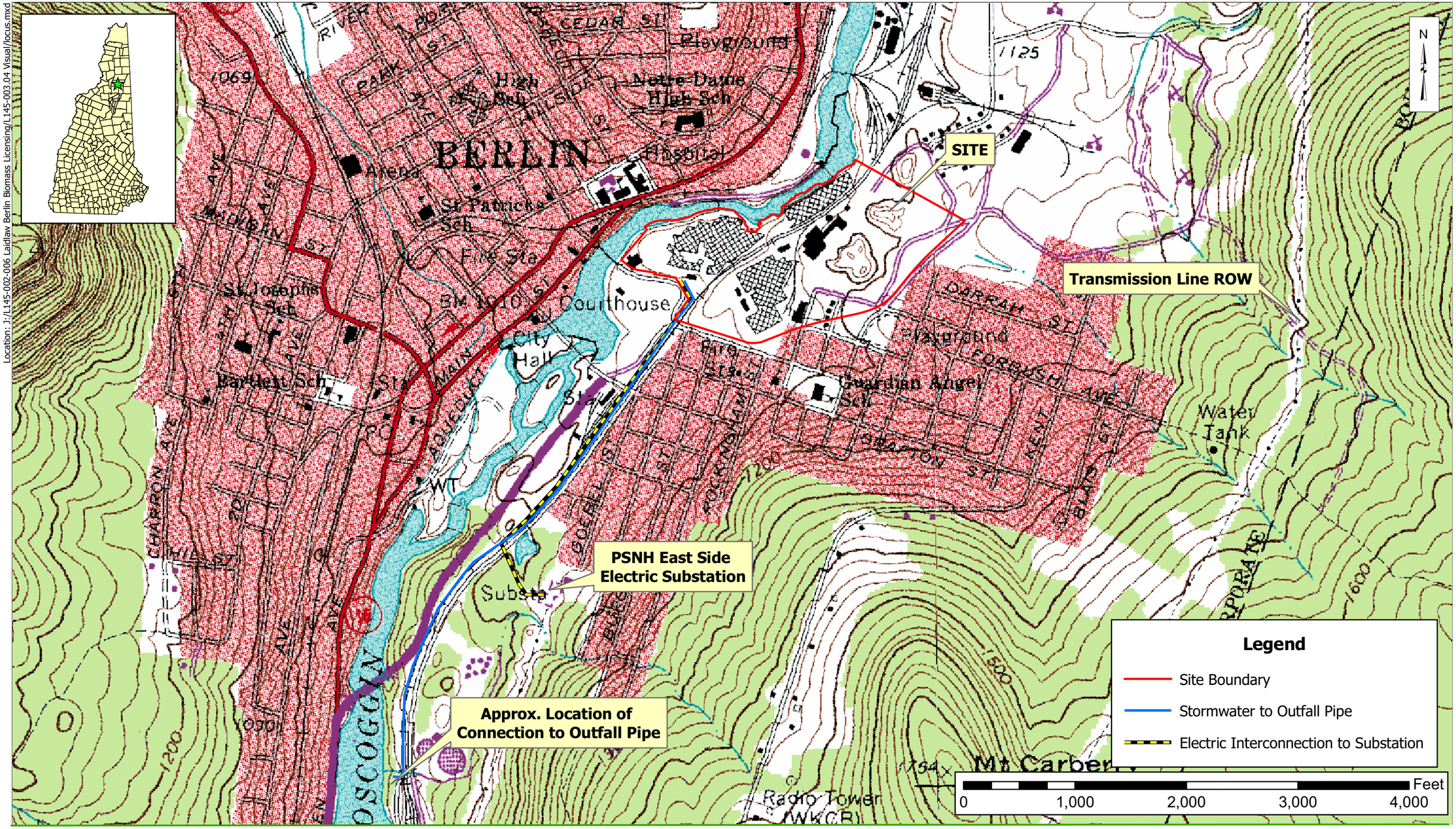
(8) Foundation 'Excavation Depth' estimated as difference between 'Estimated Ground Elevation' and 'Estimated Bedrock Elevation'

(9) 1 cubic yard of soil = 1.5 tons of soil

(10) 1 boring required per every 200 tons of soil for first 2,000 tons and 1 boring per every 500 tons greater than initial 2,000 tons soil.

Figures

Location: J:/L145-002-006 Laidlaw Berlin Biomass Licensing/L145-003.04 Visual/locus.mxd



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Engineers
Scientists
Consultants

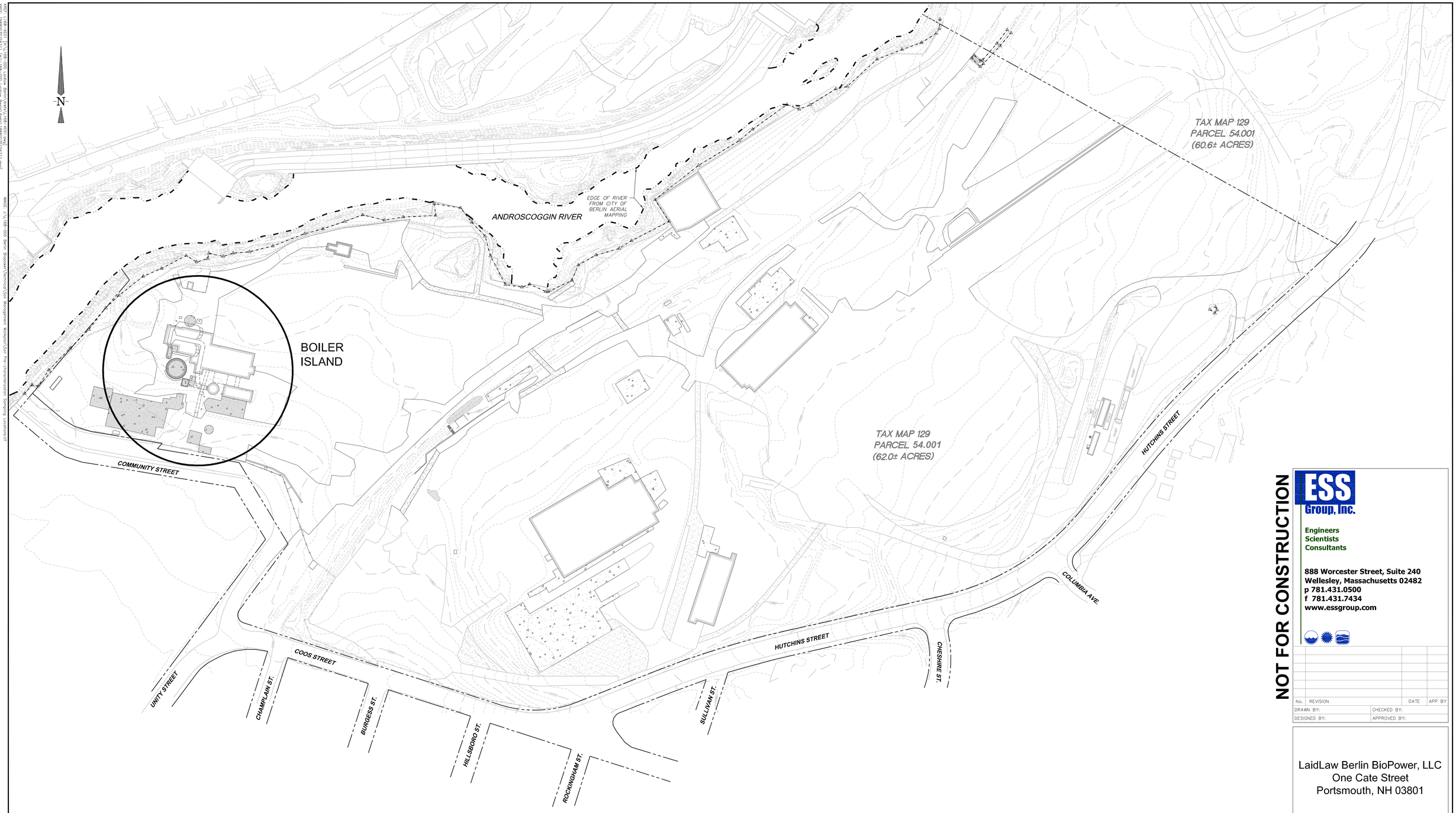
LAIDLAW BERLIN BIOPOWER
Berlin, New Hampshire

Scale: 1" = 800'

Source: 1) NHGRANIT, 1:12,000 Ortho, 1998
2) ESS, Site Boundary, 2009

U.S.G.S. Locus Map -
Project Site and Ancillary Facilities

Figure
1



NOT FOR CONSTRUCTION

ESS Group, Inc.
Engineers
Scientists
Consultants

888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482
p 781.431.0500
f 781.431.7434
www.essgroup.com

No.	REVISION	DATE	APP BY

DRAWN BY:	CHECKED BY:
DESIGNED BY:	APPROVED BY:

LaidLaw Berlin BioPower, LLC
One Cate Street
Portsmouth, NH 03801

Biomass Energy Facility
Berlin, NH

Project Site Plan

PROJECT No.: L168	DRAWING No.
DATE OF ISSUE: 4/27/11	**Fig.2**
SHEET No.:	
SCALE: 1"=100'	

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XREF: 1988003515A211 [N:\L168-000 Ludlow Berlin\Xref\1988003515A211.dwg]
IMAGE: N:\L168-000 Berlin Biopower\Technical\Soil Management Blowdown\Soil Pre-characterization Sampling Locations.tif
DATE: Apr 27, 2011 - 4:57PM
FILENAME: N:\L168-000 Ludlow Berlin-Phase1\L168_Soil Mgmt Plan.dwg

N

1020
1030
1040
1050

PROPOSED ELECTRICAL BUILDING
PROPOSED UNLOADING AREA & CONTAINMENT
PROPOSED COOLING TOWER BASIN
PROPOSED SORBENT SILO
EXISTING PRECIPITATORS
PROPOSED FABRIC FILTER SUPPORT STRUCTURES
PROPOSED BOILER ADDITION SUPPORT STRUCTURES
EXISTING BOILER HOUSE
PROPOSED COOLING TOWER SUMP
PROPOSED SCR AREA
PROPOSED I.D. FAN BUILDING
EXISTING STACK
EXISTING CONTROL ROOM
APPROXIMATE LOCATION OF PROPOSED COOLING TOWER WATER PIPE TRENCH
PROPOSED ADMIN BUILDING
PROPOSED ELECTRICAL BUILDING
PROPOSED TRANSFORMER YARD
PROPOSED TURBINE BUILDING
EXISTING MONITORING WELLS

COMMUNITY STREET

0 30 60
SCALE IN FEET

LEGEND

- SOIL PRE-CHARACTERIZATION SAMPLING LOCATIONS
- PROPOSED STRUCTURE OR ADDITION
- EXISTING CONCRETE

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ESS Group, Inc.
Engineers
Scientists
Consultants

888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482
p 781.431.0500
f 781.431.7434
www.essgroup.com

No.	REVISION	DATE	APP BY

DRAWN BY:	CHECKED BY:
DESIGNED BY:	APPROVED BY:

LaidLaw Berlin BioPower, LLC
One Cate Street
Portsmouth, NH 03801

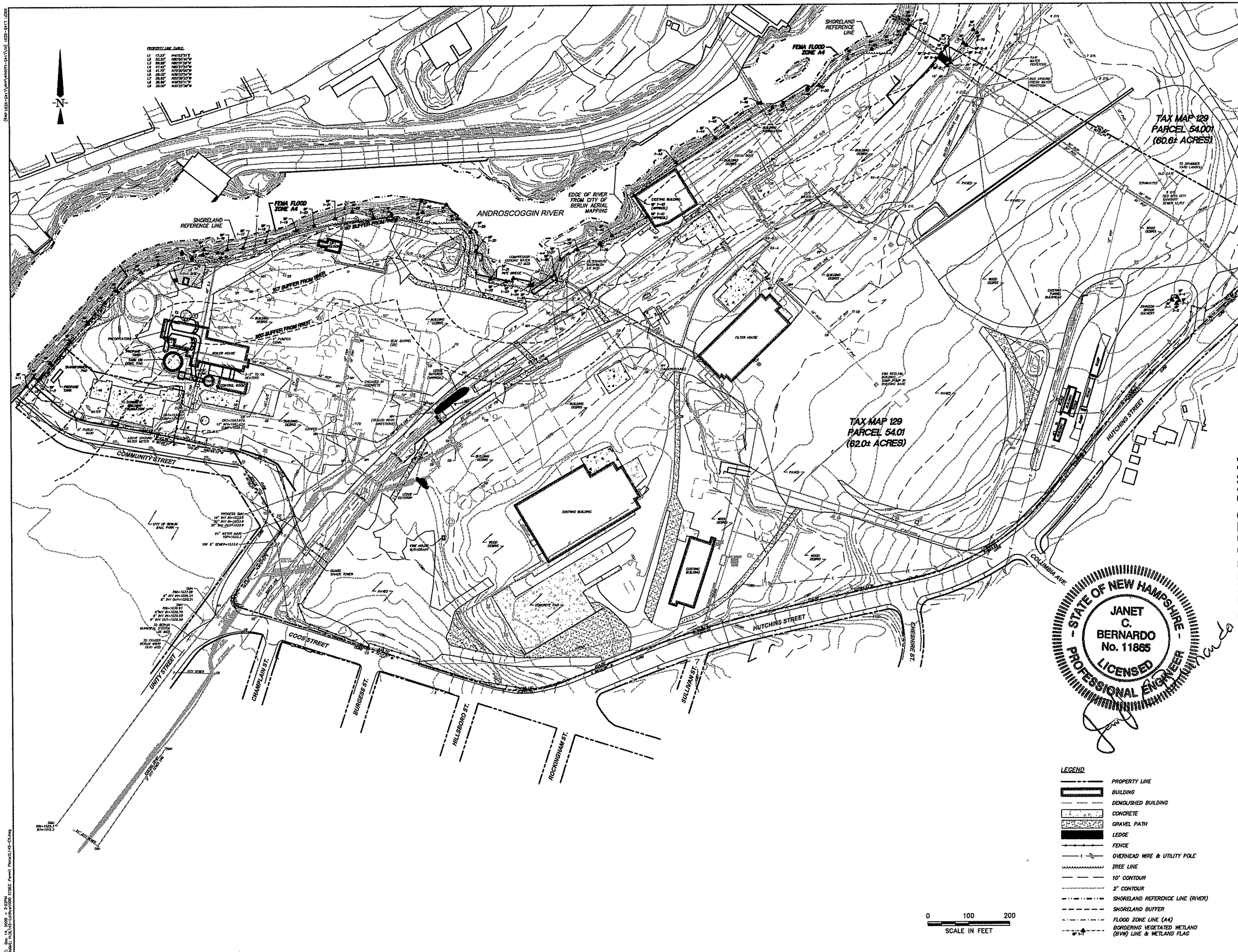
Biomass Energy Facility
Berlin, NH

Boiler Island
Proposed Foundation & Sampling Locations

PROJECT No.: L168	DRAWING No.
DATE OF ISSUE: 4/27/11	**Fig.3**
SHEET No.:	
SCALE: 1"=100'	

Appendix A

Reference Plans and Figures



FOR PERMITTING PURPOSES ONLY

ESS Group, Inc.
Engineers
Scientists
Consultants

888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482
p 781.431.0500
f 781.431.7434
www.essgroup.com

No.	REVISION	DATE	APP BY

DRAWN BY: DJC — CHECKED BY: JCB
DESIGNED BY: DJC — APPROVED BY: JCB

LaidLaw Berlin BioPower, LLC
90 John Street, 4th Floor
New York, NY 10038

Biomass Energy Facility
Berlin, NH

EXISTING CONDITIONS PLAN

PROJECT No.: L145-004
DATE OF ISSUE: 12/15/09
SHEET No.: 3 of 22
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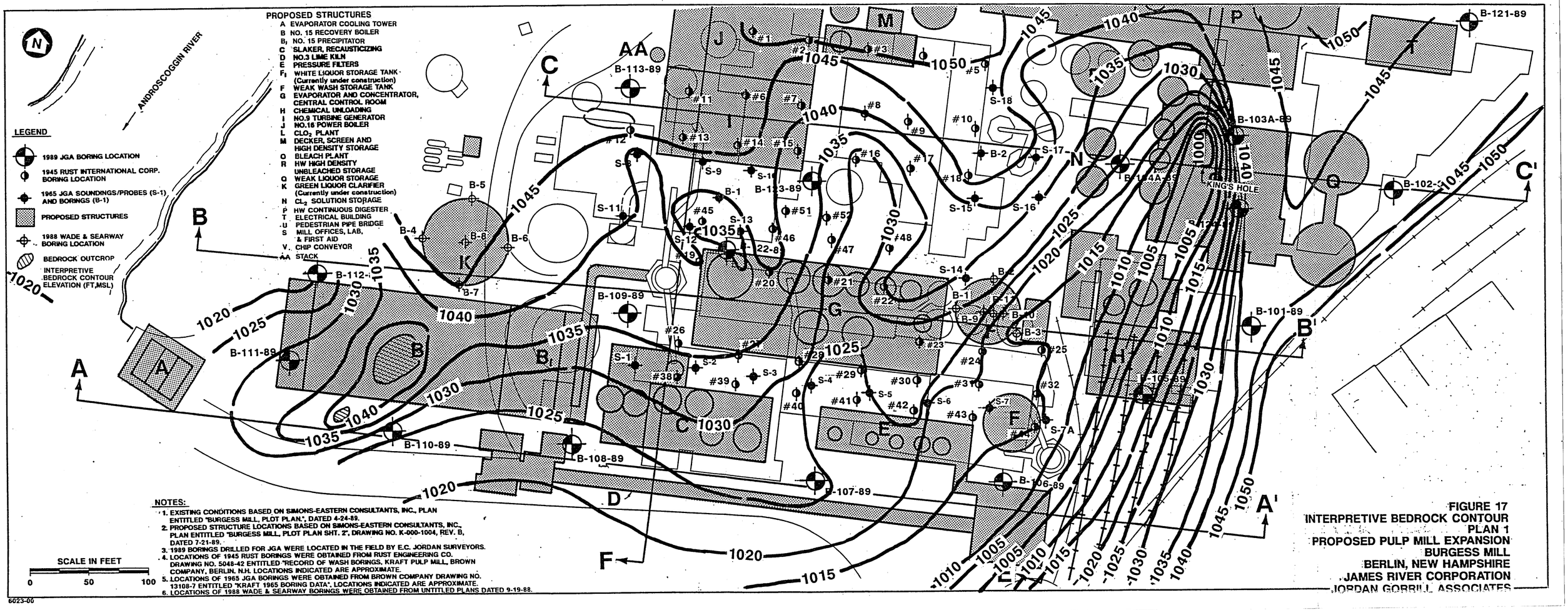

NOTES:

1. EXISTING CONDITIONS BASED ON SIMONS-EASTERN CONSULTANTS, INC., PLAN ENTITLED "BURGESS MILL, PLOT PLAN.", DATED 4-24-89.
2. PROPOSED STRUCTURE LOCATIONS BASED ON SIMONS-EASTERN CONSULTANTS, INC., PLAN ENTITLED "BURGESS MILL, PLOT PLAN SHT. 2", DRAWING NO. K-000-1004, REV. B, DATED 7-21-89.
3. 1989 BORINGS DRILLED FOR JGA WERE LOCATED IN THE FIELD BY E.C. JORDAN SURVEYORS.
4. LOCATIONS OF 1945 RUST BORINGS WERE OBTAINED FROM RUST ENGINEERING CO. DRAWING NO. 5048-42 ENTITLED "RECORD OF WASH BORINGS, KRAFT PULP MILL, BROWN COMPANY, BERLIN, N.H. LOCATIONS INDICATED ARE APPROXIMATE.
5. LOCATIONS OF 1965 JGA BORINGS WERE OBTAINED FROM BROWN COMPANY DRAWING NO. 13108-7 ENTITLED "KRAFT 1965 BORING DATA". LOCATIONS INDICATED ARE APPROXIMATE.
6. LOCATIONS OF 1988 WADE & SEARWAY BORINGS WERE OBTAINED FROM UNTITLED PLANS DATED 9-19-88.

FIGURE 17
INTERPRETIVE BEDROCK CONTOUR PLAN 1
PROPOSED PULP MILL EXPANSION
BURGESS MILL
BERLIN, NEW HAMPSHIRE
JAMES RIVER CORPORATION
JORDAN GORRILL ASSOCIATES

6023-06

LEGEND

- GZ-1 — TEST BORING LOCATION AND DESIGNATION
- SG-1 — STAFF GAUGE LOCATION AND DESIGNATION
- SS-1 — HAND AUGER PROBE LOCATION AND DESIGNATION
- PROPERTY BOUNDARY
- RAILROAD
- FENCE
- WOODED AREA
- RIVER
- BUILDING
- (1021.2) BEDROCK ELEVATION (NGVD)
- BEDROCK ELEVATION CONTOUR IN FEET

NOTES:

1.) BASE PLAN WAS DEVELOPED FROM A PLAN ENTITLED "TOPOGRAPHIC MAP, BERLIN, NEW HAMPSHIRE" PREPARED BY CARTOGRAPHIC ASSOC., INC. OF LITTLETON, NEW HAMPSHIRE, DATED DECEMBER 1, 1992. ORIGINAL SCALE 1" = 100'.

2.) BEDROCK ELEVATION CONTOURS ARE BASED ON SUBSURFACE EXPLORATION DATA AND FIELD OBSERVATIONS. CONTOURS SHOWN ARE CONSISTENT WITH AVAILABLE DATA, BUT MAY NOT REFLECT ACTUAL SUBSURFACE CONDITIONS.

3.) ACTUAL BEDROCK ELEVATIONS MAY BE LOWER THAN REFUSAL ELEVATIONS. REFUSAL DURING DRILLING IS DEFINED AS LITTLE OR NO ADVANCE OF THE CASING OR SAMPLER. REFUSAL IS OFTEN AN INDICATION OF ENCOUNTERING BEDROCK, BOULDERS OR GLACIAL TILL.

0 50 100 200 300 Feet

N

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GZA GeoEnvironmental, Inc.
Engineers & Scientists
AIRPARK BUSINESS CENTER
380 HARVEY ROAD
MANCHESTER, NH 03103-3347
PH: (603) 623-3600 FAX: (603) 624-9463

PHASE II HYDROGEOLOGIC INVESTIGATIONS
BURGESS MILL
BERLIN, NEW HAMPSHIRE

BEDROCK ELEVATION CONTOUR PLAN

PROJ. MGR: SL DESIGNED BY: MAT REVIEWED BY: SRL OPERATOR: EMD CHECKED BY: DNK	DWG. DATE: 12/30/03	JOB NO.: 23441.00	FIGURE NO.: 6

SOIL MANAGEMENT WORK PLAN

BERLIN BIOPOWER
PARCEL 129-54.001
BERLIN, NEW HAMPSHIRE
NHDES SITE NUMBER 201105046
NHDES PROJECT NUMBER 26408

PREPARED FOR

Laidlaw Berlin BioPower, LLC
One Cate Street, Suite 100
Portsmouth, New Hampshire 03801

PREPARED BY

ESS Group, Inc.
888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482

May 2011 (Revised June 9, 2011)

www.essgroup.com

SOIL MANAGEMENT WORK PLAN

Comment [h1]: This version includes requested edits/comments from the NHDES.

Berlin BioPower
Parcel 129-54.001
Berlin, New Hampshire
NHDES Site Number 201105046
NHDES Project Number 26408

Prepared For:

Laidlaw Berlin BioPower, LLC
One Cate Street, Suite 100
Portsmouth, New Hampshire 03801

Prepared By:

ESS Group, Inc.
888 Worcester Street, Suite 240
Wellesley, Massachusetts 02482

May 2011 (Revised June 9, 2011)

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APPENDICES

1.0 INTRODUCTION

This Soil Management Work Plan (the "Work Plan") was prepared by ESS Group, Inc. ("ESS") on behalf of Laidlaw Berlin BioPower, LLC ("LBB") for implementation prior to and/or during excavation and soil management activities associated with construction of the Berlin BioPower Project in Berlin, New Hampshire (the "Project"). This Work Plan, as required pursuant to the Certificate of Site and Facility With Conditions ("the Certificate") issued to the Project by the New Hampshire Site Evaluation Committee ("SEC"), was developed to ensure that soil excavation and management activities are completed in a manner that is protective of human health and the environment and compliant with all applicable state and federal regulations. The Work Plan presents the following information:

1. Project Site information including location, environmental setting, known contaminants of concern, and project overview;
2. Details of the soil excavation activities including anticipated locations/depths and soil volumes;
3. Soil characterization (sampling and analysis) procedures related to in-situ pre-characterization and ex-situ soil stockpile sampling and analysis;
4. Groundwater characterization (sampling and analysis) procedures related to National Pollutant Discharge Elimination System (NPDES) General Permit requirements for groundwater dewatering, if required;
5. New Hampshire Department of Environmental Services (NHDES) Notification requirements;
6. Excavation and soil management and monitoring procedures including field screening of soil for the potential presence of contamination; and
7. General requirements related to field instrument maintenance and calibration, sampling equipment decontamination, record keeping, and health and safety.

2.0 PROJECT DESCRIPTION

LBB is proposing to convert and upgrade much of the remaining facility equipment and infrastructure located at the former Fraser Pulp Mill in order to develop a biomass fueled energy generating facility.

Figure 1 is a Project Locus map and Figure 2 is a Project Site Plan that shows the overall Project Site, including the relative location of the Project's major components (i.e., the "Boiler Island"). Figure 3 illustrates the proposed layout of the Boiler Island's major components. The black liquor recovery boiler currently located at the Site will be converted to a biomass fueled unit. A bubbling fluidized bed (BFB), which represents highly efficient and advanced biomass combustion and power conversion technology, will be installed at the base of the boiler in place of the existing black liquor firing and recovery systems. The footprint of the existing boiler building will be expanded slightly, requiring excavation for the placement of new foundations and footings, primarily along the building's northern side.

The existing electrostatic precipitator (ESP) used to control particulate emissions, and located immediately to the west of the boiler building, will be replaced with a new fabric filter baghouse system. A new selective catalytic reduction (SCR) system will be added to control NOX emissions. Construction of the baghouse will require excavation and placement of new footings along the western side of the boiler building. The SCR system will be placed within a new structure to the south of the boiler building and west of the existing stack. A new structure will be constructed between the SCR structure and the stack to house new boiler exhaust handling equipment (induced draft or "I.D" fan).

Development of the overall Facility will also include construction of a new steam turbine building to the south of the boiler and stack, along with an adjacent Administration Building. A new cooling tower will be installed near the western edge of the property behind the boiler building.

An electric transmission interconnection line will be installed between the site and the existing high voltage transmission line operated by Public Service Company of New Hampshire (PSNH). A small switchyard will be installed adjacent to the new steam turbine building, which will provide necessary power isolation systems and a step up transformer. From the switchyard, an underground transmission cable will be installed first through a new on-site duct bank, and then along the route of an existing underground pipe formerly used to transport pulp from the site to the Fraser Gorham paper mill.

The application approved by the SEC provided for the construction of two wood fuel off-loading and storage areas; one next to the boiler area and one along the northeast end of the site. The approved site plans also provided for the construction of equipment to be installed within a new building in the vicinity of the northeast wood storage area to produce wood chips from whole logs. LBB is not currently proposing to construct the wood chipping building and equipment or the wood yard on the northeast end of the Site, and thus is not including these portions of the Site in the pre-characterization studies presented in the Work Plan. Should LBB elect to develop these approved portions of the Project at a later date, proper soil characterization and management procedures will be implemented consistent with those laid out in the Work Plan.

Construction of the Project will proceed from the western edge of the property toward the east. Detailed design engineering of those structures to be constructed first, which are located in the vicinity of the boiler, have been completed and are the primary focus of this Work Plan. This area is generally referred to as the "Boiler Island" (Figure 3). Construction of the Boiler Island area comprises the major excavation activities associated with the Project. Prior to soil excavation and management work outside the Boiler Island area, the LBB shall review and modify this Work Plan, as necessary, to ensure continued implementation of procedures to protect human health, safety, and the environment and compliance with regulatory requirements.

3.0 PROJECT SITE INFORMATION

The Project Site is located along the northern sides of Community, Coos and Hutchins Streets in Berlin. The Androscoggin River runs along the northwest boundary of the site. The northeast border of the site abuts the remaining portion of the former Fraser Pulp Mill. The Project Site is approximately 62 acres of

land zoned as Industrial/Business, and consists of the southern portion of the property formerly known as the Burgess Mill, Berlin Mill, and most recently the Fraser Pulp Mill.

The Site has a long history of industrial use and development, with many other buildings having been razed and replaced over the years. The original structure constructed on the Site was the Riverside Newsprint Building built in 1891, at which time pulping and papermaking activities began at the Site. The Site continued to be used for pulping operations until September 2001, when operations were temporarily suspended, resuming again in 2003 after the property was purchased by Fraser. The pulp mill permanently closed in May of 2006 and the Site was sold to North American Dismantling Company (NADC), after which the majority of buildings and structures were razed.

3.1 Surrounding Property Use

Current uses of properties adjacent to the Site include industrial, commercial, residential, and open space. The current zoning designations and uses of surrounding properties are summarized below:

Northeast End of the Site – Immediately adjacent to the Site is a vacant tract of land zoned as Industrial/Business, which is part of the former overall pulp mill property. Residential single-family properties exist north of this tract, along with vacant land, and the nearby Mt. Carberry Landfill.

East and Southeast of the Site – Residential and commercial properties exist across Hutchins Street, zoned as Residential Two-family and Single Family.

South of the Site – A park (open space), residential properties, and a few commercial properties are located across Hutchins, Coos, and Community Streets from the Site.

West/Northwest of the Site – The Androscoggin River directly abuts the Site to the west/northwest. The northern end of the Berlin Downtown District is located across the river from the south west end of the site. Several commercial properties are located across the river from the northwest portions of the Site, including a property which was part of the former Burgess Mill and is currently occupied by two buildings. The river is also the site of a hydroelectric dam, penstocks, and a hydroelectric generating station.

3.2 Existing Soil and Groundwater Conditions

Previous environmental investigations identified Project Site soil and groundwater contamination from historic site use. Sources of contamination were identified as (i) incidental spillage and leakage of fuel oils, lubricating oils, hydraulic oils, gasoline, and chemicals related to wood pulping and pulp bleaching (sulfuric acid, phosphoric acid, sodium hydroxide, calcium hydroxide, calcium oxide, hydrogen peroxide), and potential process byproducts; (ii) incidental spillage of oils and solvents used in the maintenance and repair of process equipment; and (iii) on-site disposal of building debris and ash.

Review of soil boring logs (GZA – 2003) indicates that overburden material in the vicinity of the Boiler Island varies in thickness ranging from approximately five to 10 feet and in some locations contains

historic fill described as very loose to very dense, brown to black, fine to coarse sand, some gravel, with varying amounts of silt, wood, and ash. Bedrock beneath the Boiler Island generally slopes in a southern direction away from the Androscoggin River. In areas to the northeast and east of the Boiler Island the overburden thickness is generally less than 15 feet, except for some areas along the Androscoggin River where the overburden is 24 or more feet thick. Historic fill was identified at some locations northeast and east of the Boiler Island at thicknesses ranging from approximately five to 10 feet. Overburden groundwater was observed in site monitoring wells at varying depths dependent upon location. The overburden saturated thickness was observed to be three feet in monitoring well GZ-20, located approximately 100 feet east, and hydraulically upgradient, of the Boiler Island area. In areas northeast and east of the Boiler Island the overburden saturated thickness ranged from four to eight feet.

Soil and groundwater samples collected by GZA in 2003 generally showed relatively low levels of certain polynuclear aromatic hydrocarbons (PAH) and metals. These compounds and locations have been documented as part of previous site investigation activities. No specific remediation activities have been required to allow development of the Project. However, proper soil and groundwater characterization is required to assure proper handling of any potentially contaminated media in locations where construction of the Project will occur.

4.0 ROLES AND RESPONSIBILITIES

The following persons are involved in this Project and will have the following roles and responsibilities:

Owner: The Owner of the project is: Laidlaw Berlin BioPower, LLC
One Cate Street, Suite 100
Portsmouth, NH 03801
Representative for this Work Plan: Dammon M. Frecker
Phone No.: (603) 319-4400 Ext. 216
Email: dfrecker@catecapital.com

The Owner is responsible for overall project implementation. The Owner will procure the services of a Contractor(s) to complete the Project construction including all soil excavation and other activities required for Project completion. It is the Owner's responsibility to ensure that Contractor(s) receive a copy of this Work Plan, and any applicable Project specific authorizations or approvals issued by government agencies, prior to performing excavation and/or soil management work at the Project Site. To the extent practicable, the Owner will seek to implement the soil pre-characterization efforts described in this Work Plan, using qualified Contractor(s), prior to initiation of Project construction activities. The Owner will bear primary responsibility for obtaining any required government approvals or authorizations for Project activities such as stormwater management, soil dewatering and groundwater management, and off-site management of soils, as applicable. The Owner will contract a qualified Environmental Monitor to conduct the oversight and reporting tasks summarized below.

Contractor(s): The Contractor(s) will furnish all labor, equipment and materials required for Project construction, including but not limited to, soil and groundwater characterization; proper soil management (including excavation, dewatering, segregating and stockpiling, loading, off-site transportation and

disposal, as required); dust control; and groundwater management as outlined in this Work Plan. Contractor(s) will also be responsible for the design and implementation of proper erosion and sedimentation control measures, stormwater management procedures, soil dewatering systems and groundwater management procedures, consistent with commonly accepted Best Management Practices and requirements set forth in any applicable government approvals or authorizations. Contractor(s) will be responsible for providing information regarding equipment design and operating procedures related to project construction activities as necessary for Owner to obtain any required government approvals or authorizations, and maintaining proper documentation to demonstrate compliance with applicable regulations, approvals and authorizations.

Environmental Monitor: The Environmental Monitor shall be responsible for overseeing the soil excavation and management activities described in this Work Plan to verify that they are performed in accordance with the procedures set forth in this Work Plan and applicable NHDES requirements. Specifically, the Environmental Monitor's role will include, but may not be limited to, review of soil and groundwater characterization data, supervision of ex-situ soil characterization, observation of all excavations and soil management activities (including segregation, stockpiling, loading, off-Site transportation, dewatering, and decontamination activities), perform field screening of excavated soils, and submit requisite reports required by the NHDES to document these activities.

NHDES: The NHDES is the regulatory agency responsible for approval of this Work Plan and for enforcing applicable State of New Hampshire environmental regulations that pertain to the Project. The NHDES contact person~~information~~ is: **~~[NHDES to provide appropriate contact information]~~**

H. Keith DuBois, P.G.
Hazardous Waste Remediation Bureau
New Hampshire Department of Environmental Services
Portsmouth, NH 03801
Phone No.: (603) 271-2987
Email: Keith.DuBois@des.nh.gov

5.0 PROPOSED EXCAVATIONS

Excavation of potentially contaminated soil will be performed during foundation installations for the new Boiler Island structures. The layout of the Boiler Island is shown on the plan entitled *Boiler Island Preliminary Foundation Location Plan* prepared by Stantec and Babcock and Wilcox Construction Co., dated April 8, 2011 (Appendix A). As noted on the plan, existing soil within the footprint of the Boiler Island structures will be excavated to bedrock and will be backfilled with structural fill, flowable fill or concrete. ESS calculated the estimated soil excavation volumes for each new structure based on the proposed dimensions provided on the foundation location plan. The excavation depths for each location were determined by taking the difference between the ground surface elevation, as determined from the existing conditions survey that was included with the SEC filing, and the bedrock surface elevations, as determined from the bedrock surface contours provided on "Figure 17 – Interpretive Bedrock Contour Plan 1" from a geotechnical investigation conducted in 1989 in support of construction of new buildings in

Boiler Island area[1] and "Figure 6 – Bedrock Elevation Contour Plan" from a 2003 hydrogeologic investigation report[2]. These figures/plans are provided in Appendix A for reference.

The dimensions, estimated depths and volumes of soil to be excavated for each new structure are presented in Table 1. As shown in Table 1, a total of approximately 17,000 cubic yards or 25,000 tons of soil will be excavated for installation of the Boiler Island structures.

6.0 SOIL CHARACTERIZATION

Soil managed as part of construction activities shall be sampled and analyzed to determine if it contains regulated levels of contaminants. It is anticipated that some portion, if not all, soil characterization for construction in the vicinity of the Boiler Island will be completed in-situ prior to excavation (i.e., pre-characterized). Any soils not fully characterized prior to excavation will be sampled from stockpiles following excavation and properly characterized prior to disposition. The procedures for both types of sampling are described in the following sections. Soil sampling and analysis shall be performed pursuant to NHDES Env-Or 611.04 for soil destined for on-site reuse and/or off-site management. Soil samples shall be analyzed for parameters listed below by a laboratory accredited under the National Environmental Laboratory Accreditation Conference (NELAC) standards and have their own quality assurance manual and standard operating procedures (SOPs) that meet the NELAC standards. These parameters were selected to meet typical off-site soil management facility requirements and include those analytes that are known to exist near the Boiler Island at concentrations greater than NHDES Soil Remediation Standards, namely metals and PAH. Samples shall be analyzed using current methodologies pursuant to SW 846 – *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.*

Soil Analytical Parameters

- Flashpoint by EPA Method 1010
- pH by EPA Method 9045
- Polychlorinated Biphenyls (PCB) by EPA Method 8082
- Resource Conservation and Recovery Act Eight (RCRA-8) Metals by EPA Methods 6000/7000
- RCRA-Herbicides by EPA Method 8151A**
- RCRA-Pesticides by EPA Method 8081A**
- Reactive Cyanide and Sulfide by EPA Method 7.3
- Semi-Volatile Organic Compounds (SVOC) by EPA Method 8270C
- Specific Conductance EPA Method 9050
- Total Petroleum Hydrocarbons (Diesel Range Organics) by EPA Method 8015B-DRO

[1] "Preliminary Geotechnical Investigation, Proposed Pulp Mill Expansion, Burgess Mill, Berlin, NH, James River Corporation", Jordan Gorrill Associates, August, 1989.
[2] "Phase II Hydrogeologic Investigation, Burgess Pulp Mill and Cascade Paper Mill, Berlin and Gorham, New Hampshire", GZA GeoEnvironmental, Inc., December 2003.

- Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311
- Volatile Organic Compounds (VOC) (high and low-level) by EPA Method 8260B/5035

**Initially, only one out of every five soil samples shall be analyzed for pesticides and herbicides. Additional sample analysis for pesticides and/or herbicides shall be required if initial sample analyses indicate pesticides and/or herbicides are present and/or based on soil receiving facility requirements.

Soil samples shall be collected using disposable and/or decontaminated sampling equipment. Soil shall be placed in laboratory-provided clean sampling containers. As appropriate, sample preservatives (e.g., methanol) shall be added by the laboratory prior to container delivery. VOC samples shall not be homogenized, shall be collected with plastic soil syringes, and shall be placed in volatile organic analysis (VOA) vials as soon as practicable following retrieval of soil from the subsurface. A field scale shall be used to weigh soil placed into VOA vials to achieve the laboratory-recommended ratios of soil to preservative. Sample containers shall be placed on ice and maintained at or below six degrees Celsius until delivery to the laboratory within method-specified holding times. Samples shall be maintained and transported under standard chain-of-custody protocols.

6.1 In-situ Soil Sampling Protocols

Representative in-situ soil samples shall be collected from each proposed excavation area in accordance with the requirements of the New Hampshire Code of Administrative Rules, Chapter Env-Or 611.04 - *Contaminated Soil Sampling*. These requirements specify the following:

1) At least one boring/test pit shall be completed for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one boring/test pit for every 500 tons above the initial 2,000 tons;

2) The borings/test pits required by (1), above, shall be completed on an evenly-spaced grid pattern throughout the contaminated soil area. Using the formula specified by item (1), above, and the rationale discussed below, the resultant grid spacing for the Boiler Island excavation areas averages approximately 27 feet. The grid spacing varies for each proposed excavation area based on the estimated depths of excavation and volume of soil to be characterized;

3) When appropriate, ~~A~~at least one boring/test pit shall be located in the most contaminated soil area. The most contaminated area will be identified using field observations (e.g., PID, visual/olfactory) as described in Section 9.3. This provision shall not apply for soil pre-characterization sampling because the most contaminated soil area will not be known;

4) At least one soil sample shall be collected from the contaminated zone of each boring/test pit required by (1) through (3), above.

For the purpose of number 4, above, the presence of historic fill materials (e.g., ash/cinders, bark, paint chips, painted masonry debris, or other debris) shall be an indication of a "contaminated zone" absent other contaminated zone indicators such as elevated photo-ionization detector (PID) readings, staining, and/or odors. Samples collected from borings with no apparent~~obvious~~ contaminated zone

Comment [h2]: Please specify the grid spacing that will be used. It is alright to say "approximate _____ ft. grid spacing". We understand you might encounter obstacles like buildings, utilities, etc.

Comment [h3]: Please specify how "the most contaminated area is going to be determined. I notice you describe this later in the text. You can repeat that text here or refer to the section where this is discussed.

shall be representative of the stratigraphy encountered in the boring.~~collected in a manner that adequately represents the stratigraphy encountered.~~ If more than one discernable stratigraphic layer is encountered in a boring with no apparent contaminated zone, one or more of the stratigraphic layers shall be selected for sampling. Under these circumstances samples shall generally be collected from the upper-most stratigraphic layer. To the extent practicable, each stratigraphic layer encountered during pre-characterization sampling shall be sampled at least once unless the presence of a contaminated zone(s) or the proposed extent of excavation dictates otherwise.

Comment [h4]: Please elaborate. Is it your intention to collect and analyze a sample from each stratigraphic layer?

Using these requirements, ESS determined that a minimum of 56 soil borings will be required to characterize the 25,000 tons of soil to be excavated from the footprint of the Boiler Island structures [i.e., 2,000 tons x one boring/200 tons + 23,000 tons x one boring/500 tons = 56 borings]. Because it is not known from where the initial 2,000 tons of soil will be excavated, ESS calculated the overall boring frequency for the project of one boring for every 446 tons of soil (25~~6~~,000 tons / 56~~8~~ borings = 446 tons/boring). ESS then used this overall boring frequency to determine the number of soil borings needed to characterize each planned excavation area, which are also listed in Table 1. The soil pre-characterization sampling locations are shown on Figure 3. The final locations, depths, and quantity of soil borings (and soil samples) are subject to change based on actual field conditions encountered. The number of soil borings (and soil samples) may be increased or decreased based on the actual thickness of overburden material encountered during the soil boring program.

As shown on Figure 3, concrete pads exist within some of the proposed foundations (SCR, Admin Building, Turbine Building). These concrete pads are reported to be three or more feet thick. Soil borings will not be advanced through existing concrete pads. It is anticipated the concrete pads will be managed separately as non-impacted media and, as such, the estimated volume of soil to be excavated from the footprint of the Boiler Island structures and the number of borings/samples required to characterize the soil takes into account this volume of concrete.

As a result of addressing each structure/excavation area separately, the total number of borings planned for the Boiler Island is 60, four more than required to characterize the estimated 25,000 tons of soil. This is appropriate because the soil volume may increase based on the need to provide sloping and shoring during foundation excavations. In addition, some of the subsurface utility trench excavations that will be completed in the Boiler Island area are not accounted for on Table 1 because they represent a relatively small volume of soil and exact locations are not currently known. To the extent practicable, the locations of proposed subsurface utility locations will be known prior to soil pre-characterization.

It is anticipated that soil borings will be advanced using direct-push drilling and sampling techniques (i.e., GeoProbe) to the depth of the anticipated excavation, or to bedrock, whichever is encountered first. As shown in Table 1, the maximum anticipated excavation depth is 10 feet. During borehole advancement, each soil sample will be screened using a PID and a jar headspace screening procedure to evaluate the potential presence of VOC in the soil, and will undergo visual and olfactory inspections for other evidence of contamination. Soil descriptions and other field observations will be recorded on soil boring logs to document subsurface soil conditions for future reference.

The locations of completed soil borings (and monitoring wells as required per Section 7.0 herein) shall be recorded in the field during the soil pre-characterization program by means of global positioning system (GPS), tape survey to existing structures, and/or licensed land surveyor. The as-built boring locations shall be incorporated into Project plans. As-built boring location plans and/or associated excavation plans, along with analytical results from each boring will be provided to the Contractor and Environmental Monitor to facilitate understanding of existing conditions and communication during soil excavation.

6.2 Ex-situ Stockpile Sampling Protocols

If additional soil characterization is deemed necessary, based on an increase in the volume of soil excavated or if contamination encountered during excavation significantly varies from what was observed during the soil pre-characterization program, representative soil stockpile samples shall be collected in accordance with the following criteria as specified in Env-Or 611.04:

1) At least one composite sample shall be collected for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one composite sample for every 500 tons above the initial 2,000 tons;

2) Each composite sample shall consist of at least 8 discrete samples collected from the stockpile; and

3) Each discrete sample shall be taken from newly exposed soil a minimum of 12 inches deep within the stockpile and combined with the other required discrete samples to complete each composite sample.

7.0 GROUNDWATER CHARACTERIZATION

Excavation dewatering may be required in order to perform excavation work “in-the-dry” and generate soil suitable for management (i.e., no free liquids). If necessary, excavation dewatering and associated groundwater management would be conducted under a NPDES Remediation General Permit (RGP). To determine the chemical quality of groundwater that may need to be managed, up to two overburden groundwater monitoring wells shall be installed, developed, and sampled in conjunction with the Soil In-situ Pre-characterization Program. The well locations shall be as follows: one in the area of the proposed Cooling Tower Basin and one in the area of the Turbine Hall Building and Turbine. These locations were selected because they are in areas where deeper excavations are proposed and the likelihood of encountering groundwater is greater. As appropriate and based on field observations, the wells shall be installed in locations where contamination is suspected so that groundwater samples adequately represent contaminated groundwater that may be dewatered. These wells may be monitored prior to excavation activities to determine the level of groundwater dewatering that may be required.

New wells shall be designed, installed, developed, and maintained in accordance with We-600 “Standards for the Construction, Maintenance, and Abandonment of Wells.” Each well shall be allowed to equilibrate a minimum of two weeks following installation prior to sampling.

Historic site plans show that monitoring wells were installed within the Boiler Island area. Existing monitoring wells that are discovered within the Boiler Island area shall be gauged for depth-to-water and depth-to-bottom and, to the extent possible, well construction documentation shall be obtained. Existing overburden wells may be used for groundwater characterization in lieu of newly installed wells as long as the existing wells are in comparable locations, not installed into bedrock, are in good repair, and are developed prior to sampling.

Wells shall be sampled using low-flow purging and sampling procedures with disposable and/or decontaminated sampling equipment. A fiberglass measuring tape or other accurate measuring device shall be used when measuring and installing tubing into wells. Purge water shall be monitored with an instrument that measures temperature, pH, dissolved oxygen, specific conductance, and oxidation/reduction potential (ORP) and the probe readings for pH, dissolved oxygen, and specific conductance are automatically corrected for temperature; such as the YSI Models 556, 600XL, 600XLM, or equivalent. Turbidity must be taken with a separate meter (such as the LaMotte 2020 turbidity meter, or equivalent). The instrument must be equipped with a flow-through-cell with a maximum capacity of 250 milliliters and the display/logger or computer display screen needs to be large enough to simultaneously contain the readouts of each probe in the instrument. Turbidity must be taken at a point before the flow-through cell and from a meter separate from the flow through cell apparatus. A three way stopcock is recommended to divert sample flow for the turbidity reading. Turbidity cannot be measured in a flow-through-cell because the flow through-cell acts as a sediment trap.

Groundwater samples shall be analyzed for parameters specified in *Appendix III - Effluent Limits and Monitoring Requirements (Category III – Contaminated Construction Dewatering)* of the RGP using the analytical methods established in *Appendix VI - Test Methods and Minimum Levels for Pollutants Covered by the RGP* of the RGP.

8.0 NOTIFICATION REQUIREMENTS

The soil and groundwater analytical data shall be compared to the NHDES Soil Remediation Standards and Ambient Groundwater Quality Standards, respectively. An exceedance of one or more of these standards shall require notification to the NHDES within 60 days of obtaining knowledge of the exceedance, pursuant to Env-Or 604 – Notification. The NHDES and the EPA Region 1 PCBs Coordinator shall be notified immediately upon receipt of soil PCB analytical results indicating the presence of PCBs at a total concentration greater than 1 mg/kg. During site characterization and excavation monitoring, field observations shall also be subject to the additional reporting requirements under Env-Or 604 (e.g., NAPL Notification and Discharges of Oil Requiring Immediate Notification).

Following receipt of pre-characterization analytical data the Owner anticipates that a meeting will be scheduled with NHDES to discuss the findings and how they relate to site redevelopment.

In addition to the notification requirements stated above, certain other NHDES notification requirements may apply to excavation activities as specified in the *Alteration of Terrain Bureau Recommended Permit Conditions* attached to the Certificate.

Comment [h5]: You will probably want to notify us as soon as you have analytical data indicating an exceedance or observe free-product. This might provide some logistical benefits. This is a suggestion and not a requested edit.

Comment [h6]: Please note that EPA has not/cannot delegate TSCA authority to NHDES. Therefore, EPA may require further site assessment and remediation of PCBs beyond the horizontal and vertical limits of the excavation work, particularly if total PCB concentrations exceed 50 mg/kg or if the source and/or date of the soils with total PCBs > 1 mg/kg cannot be determined or the source is likely to have had a PCB concentration > 50 mg/kg.

9.0 EXCAVATION MONITORING

During excavation, the Environmental Monitor will be on-site to supervise the excavation and management of contaminated soils. The excavated contaminated soil shall be managed in accordance with applicable local, state, and federal requirements and in a manner that protects human health, safety, and the environment, ~~and in accordance with applicable local, state, and federal requirements~~ as further discussed in Sections 9.1 through 9.7 herein. The following soil excavation and management procedures shall be followed during earthwork activities.~~:~~

Comment [h7]: Either elaborate on the management protocol or refer to the section where more detail is provided.

9.1 Site Setup

Physical barriers, such as temporary fencing, shall be constructed to prohibit access to the work area by unauthorized persons, and the barriers shall be maintained so that they effectively prohibit such access for the duration of the work.

Erosion control measures shall be employed, as needed, to prevent the runoff of soil from the work area. Erosion control measures will include staked hay bales and/or plastic membrane (silt fence) to control migration/erosion of exposed contaminated soil from the work area for the duration of the work. The locations and details for erosion control measures will be detailed in a Storm Water Pollution Prevention Plan required under the NPDES General Permit for Construction Activities. Catch basins located within the work area shall be lined with filter-fabric and hay bales shall be installed at the ground surface around each catch basin to prevent contaminated soil migration into the catch basins. Catch basins that are lined with filter materials shall be continually maintained during construction to prevent the building up sediment and subsequent flooding of the work area.

Temporary on-Site soil stockpiling areas and decontamination areas will be established prior to initiating any excavation activities. The temporary soil stockpile areas shall consist of a base of a minimum of 6-mil thick polyethylene sheeting, or equivalent suitable impervious material and shall be surrounded by a single row of hay bales to prevent migration of potentially contaminated stockpiled soil to other portions of the Site via storm run-off. The temporary soil stockpile areas and decontamination areas shall be visibly marked with appropriate signage warning of potential hazards. The condition of the soil stockpile polyethylene cover and hay bale berm shall be inspected daily for integrity and shall be replaced/repaired immediately during the entire time that soils are stockpiled on the site. Inspection/repair logs for the soil cover and hay bale berm shall maintained at the site and made available to NHDES personnel upon request.

9.2 Soil Excavation

Soil excavation shall be performed in accordance with generally accepted excavation/construction practices and all applicable requirements of the Occupational Safety and Health Administration (OSHA).

Excavation work shall be conducted in a manner that limits the mixing of materials containing different levels and types of contamination to the highest degree possible, and which minimizes the uncontrolled migration of soil to areas outside of the work area.

The Environmental Monitor shall keep daily logs and notes describing in detail the excavation activities for each soil/excavation area, including native soils. Notes shall include, but not be limited to, the amounts of soil excavated from each contaminated soil/excavation area, field headspace screening and sampling locations and depths, site plans and/or sketches showing underground utility lines and pertinent surficial features, and ambient air/breathing zone PID screening results, as appropriate.

All equipment used during the excavation of contaminated soil shall be properly decontaminated prior to use and after each designated contaminated soil area is excavated (prior to moving to the next contaminated soil area).

Opened excavations shall be adequately protected at the end of each work day to prevent the off-site distribution and migration of contaminated dust/particulates, as discussed further in Section 9.6. Such protective measures may include, but are not limited to, covering and securing exposed contaminated soils with polyethylene sheeting of minimum 6-mil thickness, or equivalent suitable impervious material. Excavations that must be left opened overnight shall be secured using appropriate means, including but not necessarily limited to, construction fencing, caution tape and/or placing steel plates over the excavation prior to leaving the Project Site for the day.

Soil and fill beneath the encountered water table shall not be excavated until dewatering of the excavation area(s) is complete, if necessary, pursuant to the NPDES RGP that will be obtained.

Comment [h8]: Please insert a section regarding dust control and monitoring of fugitive dust emissions or reference the appropriate section.

9.3 Soil Segregation and Stockpiling

The Environmental Monitor shall perform on-site soil screening during excavation to segregate contaminated soils based on relative levels of contamination. Soil screening shall be performed using visual and olfactory evaluations, a PID, and using knowledge obtained form the in-situ soil pre-characterization program (see Section 6.0 of this Work Plan).

Visual and olfactory evidence of contamination may include staining, the presence of non-aqueous phase liquids (NAPLs), the presence of non-soil fill materials (e.g., ash/cinders, bark, paint chips, painted masonry debris, or other debris), and/or unusual odors.

Comment [h9]: define or provide examples.

Soil screening using a PID shall be conducted following a headspace screening procedure. Excavated soils exhibiting headspace readings greater than 10 parts per million by volume (ppmv) shall be stockpiled separately from soils with headspace readings less than 10 ppmv. The threshold of 10 ppmv may be modified based on the results of soil pre-characterization.

Soils containing apparent paint chips and painted debris fragments shall be segregated for separate waste characterization and disposal. Soils containing PCB ~~at total concentrations > 1 mg/kg~~ shall be segregated from~~for~~ other soils. Further, soils containing PCBs at total concentrations > 50 mg/kg shall be segregated from all other soils.

Comment [h10]: Please note that EPA/TSCA requires/uses in situ soil PCB concentrations (pre-excavation/stockpiling) for disposal purposes. Blending these soils could result in a costly soil disposal program.

Soils that contain NAPL or other overt evidence of contamination that is not consistent with soil pre-characterization results shall be segregated from other excavated soil and shall be characterized and

transported off-Site for recycling and/or disposal in accordance with the requirements of Section 6.0 of this Work Plan and/or as directed by NHDES. If NAPL is encountered during excavation activities, immediate notification will be provided to NHDES in accordance with Env-Or 604, and as described in Section 8.0 of this Work Plan.

Unsuitable fill material such as broken pavement, building debris, wood, metal, concrete, shall be separated from soil materials and stockpiled separately. These materials may require off-Site disposal as construction debris. Painted masonry debris and painted building materials shall not be reused at the site. These materials will be stockpiled separately and shall be disposed of at a properly permitted facility following waste characterization analyses. Said analyses shall include RCRA metals and PCBs. Non-painted masonry materials free of tiles and adhesives may be crushed and stockpiled for on-site beneficial reuse.

Comment [h11]: Please note that PCBs are none to have been incorporated in various materials during the manufacturing process. Examples include floor tiles, adhesives, caulking, and oil-based paints. Several sites in Berlin (including the former paper company Research & Development Buildings) have been found to contain PCBs at concentrations generally below 13 mg/kg but sometimes > 100 mg/kg.

Pursuant to Env-Or 611.05, excavated contaminated soils shall be stockpiled in pre-designated, temporary stockpile storage areas on a minimum of 6-mil thick polyethylene sheeting, or equivalent suitable impervious material. Contaminated stockpiled materials shall be graded to shed water and shall be covered prior to inclement weather, at the end of each work day, and/or during periods of prolonged inactivity with a minimum 6-mil thick polyethylene (or equivalent suitable impervious material) overlapped and weighted to form a continuous waterproof barrier over the material. The cover shall be maintained throughout the stockpile period to control water entering the stockpiled materials and to limit dust generation. The contaminated soil pile shall only be uncovered when contaminated soil is being added to or removed from the pile. Public access to the contaminated soil pile storage area shall be restricted.

All excavated stockpiled soils shall be reused on site, if appropriate, or shall be characterized and transported off-site to an appropriate permitted disposal facility within four months, pursuant to Env-Or 611.05. Excavated stockpiled soils shall not be transported for off-site disposal for fill or any other use at uncontrolled properties that are not permitted to accept soil for disposal.

9.4 Re-Use of Excavated Soils

Stockpiled soil that meets the standards set forth in Table 600-2 of Env-Or 606.19 may be reused on-site as backfill materials to the extent possible. Based on the results of the in-situ soil pre-characterization sampling, site specific soil reuse standards may be developed for this project, in accordance with Env-Or 606.19(c). Any site specific standards developed for this project will be provided to NHDES for review and approval prior to their use.

Excavated soil that cannot be reused as backfill will remain stockpiled onsite until it is properly characterized for off-site transportation and treatment or disposal at an appropriate facility.

9.5 Soil Transportation and Off-Site Management

Contaminated soil that cannot be re-used on site due to contaminant concentrations, geotechnical specifications and/or on-site re-use capacity shall be properly characterized prior to being transported off-site for treatment and/or disposal. To the extent possible, the laboratory data obtained from the

soil pre-characterization program described in Section 6.0 of this Work Plan will be used to characterize the stockpiled soil, however, additional laboratory analytical data may be needed in some cases based on the volume of soil requiring disposal.

The amount and type of laboratory analytical data required to properly characterize soil varies depending on the facility. In accordance with Env-611-04(a), the minimum sampling requirements for off-site disposal of stockpiled soil shall be as follows:

1) At least one composite sample shall be collected for every 200 tons destined for off-site treatment or disposal up to 2,000 tons, plus at least one composite sample for every 500 tons above the initial 2,000 tons;

2) Each composite sample shall consist of at least 8 discrete samples collected from the stockpile; and

3) Each discrete sample shall be taken from newly exposed soil a minimum of 12 inches deep within the stockpile and combined with the other required discrete samples to complete each composite sample.

The analytical parameters required for off-Site re-use, recycling or disposal vary by facility and may include all or some of the parameters listed in Section 6.0. The soil analytical data will be compared to off-Site facility acceptance criteria (i.e., in-state and out-of-state landfills).

The transporter shall have all New Hampshire licenses, permits, etc. required to transport the soil off-site and fulfill all other out-of-state requirements if the soil is transported out of New Hampshire. When transported upon public roadways, all soils shall be covered to minimize fugitive dust. All soil transported from the Project Site shall be handled in accordance with applicable local, state, and federal regulations and standards.

9.6 Dust Control and Monitoring

On-site dust control techniques will be implemented during excavation to control the generation of dust and protect on-site workers and surrounding populations from exposure to on-site contamination through the inhalation of fugitive dust emissions. Dust control techniques will include but may not be limited to use of one or more of the following measures~~, as necessary:~~. Note that some of these measures are **required.**

- Limit~~ing~~ areas of ground/soil disturbance to only those areas necessary for completion of the work [as necessary].
- Wet~~ting~~ soils and soil stockpiles frequently during excavation to suppress dust generation [as necessary].
- Cover~~ing~~ excavation areas ~~and soil stockpiles~~ with poly sheeting during periods of prolonged inactivity and at the end of each work day [as necessary].

- Cover soil stockpiles with poly sheeting during periods of prolonged inactivity and at the end of each work day (refer to Section 9.1) **[required]**.

- Construct and maintain a temporary gravel construction entrance long enough to accommodate all equipment and vehicles that will enter the site and equal to the width of the proposed site entrance(s). The construction entrance shall be made of adequately sized stone and maintained by the Contractor in a condition that will prevent tracking or flowing of sediment onto the public right-of-ways. Geotextile fabric shall be placed over the entire area prior to placing of stone. All sediment spilled, dropped, washed, or tracked onto roadways will be removed and managed appropriately (i.e., with site soils or characterized and managed separately) **[required]**.

- Decontaminate vehicles, equipment, and appurtenances prior to leaving the site. The temporary gravel construction entrance shall serve as the decontamination area. Sediment shall be removed from tires, tracks, undercarriage, and other areas where accumulation occurs **[required].** ~~Cleaning up loose soils that are tracked onto adjacent roadways by excavation equipment and/or transportation vehicles.~~

- Additional decontamination procedures will be required if total PCB concentrations above 1 mg/kg are detected. In such case, this Work Plan will be updated appropriately.

- Slowing or stopping work if ambient dust monitoring indicates that action levels have been exceeded **[required]**. The minimum action level shall be visible dust. More stringent and quantitative action levels may be developed based on pre-characterization soil analytical data and a Focused Risk Characterization. This Work Plan and site-specific HASP(s) will be updated to include said quantitative action levels, if required.

Comment [h12]: Additional decontamination procedures will be required if total PCB concentrations above 1 mg/kg are detected.

Comment [h13]: Please provide the action levels and limited justification for the values selected.

The need for a dust monitoring program will be evaluated based on the analytical results of soil pre-characterization and a subsequent Focused Risk Characterization. If required, the Environmental Monitor shall implement a dust monitoring program during excavation activities that involve contaminated soil. Dust monitoring shall be performed using real-time aerosol monitors, such as MIE DataRAM Aerosol Monitors equipped with MIE Omnidirectional Sampling Inlets and MIE PM10 Sampling Heads, DUSTTRACK 8250, or equivalent. Dust monitoring stations will be established at upwind and downwind locations of the excavation areas. The monitors will be properly calibrated prior to use and programmed to take dust readings at regularly established intervals (e.g., every five minutes). Dust monitor readings will be observed and recorded at the beginning and mid-point of each work day, and the continuous monitoring data will be downloaded at the end of each work day. The dust readings will be used to evaluate the effectiveness of the dust suppression techniques and whether or not additional dust suppression techniques should be implemented.

Dust emissions from construction activities (i.e., soil/fill excavation actions) will be considered acceptable if the difference between upwind and downwind concentrations is less than the action level. If the difference between upwind and downwind concentrations exceeds the action level then appropriate dust control measures shall be implemented to rectify the condition.

9.7 Groundwater Dewatering

In areas where proposed soil excavation will require groundwater dewatering, contaminated groundwater will be pumped from the excavation and treated on-site prior to being discharged to the Androscoggin River under a NPDES RGP. Groundwater treatment will include a mobile treatment system consisting of an oil water separator/flow equalization tank followed by granular activated carbon treatment tanks and/or particulate filtration, as necessary. Treatment system sampling will be performed in accordance with the NPDES RGP requirements.

10.0 FIELD INSTRUMENT CALIBRATION AND MAINTENANCE

All instrumentation necessary for field monitoring and health and safety purposes shall be maintained, calibrated, tested and inspected according to the manufacturers' instructions. Copies of the operating instruction manuals and calibration procedures shall be kept with the equipment. Any manufacturer-provided repair kits shall be kept on-site for the duration of equipment use.

At a minimum, instrument calibration and/or calibration checks shall be conducted at the beginning of each day of use at the Site. Calibration shall be checked to ensure the instrument was calibrated properly. If the calibration check indicates the instrument is operating within acceptable limits (e.g., PID reading between 95 and 105 ppmv when checked with 100 ppmv isobutylene span gas) then it may be used without re-calibrating. Equipment calibration acceptance criteria shall be +/-5 percent, unless otherwise specified by the equipment manufacturer. In addition to pre-work calibration, PID calibration shall be checked half-way through the day and again at the end of the day to ensure that the PID has remained in calibration throughout the day.

Should any erratic or illogical readings occur between calibrations, the instrument shall be recalibrated in order to ensure that representative measurements are obtained. All calibration, check values, and maintenance activities shall be documented on a calibration log in a manner that is traceable to the equipment (i.e., make, model, and serial numbers).

11.0 RECORD-KEEPING AND REPORTING

The Environmental Monitor shall be responsible for maintaining field log books and/or pre-printed field work sheets/logs to accurately document all field activities: on-site conditions, field screening/monitoring and sample collection information, field instrument and calibration information, global positioning system (GPS) or other survey information/coordinates, and any other pertinent site-related information observed during soil and groundwater characterization, soil excavation, segregation, on-site stockpiling, monitoring, and off-site management activities conducted as part of the proposed excavations. More specifically and related to excavation monitoring, these records shall include, but not be limited to, the following:

- The location and depth of intrusive activity for each soil/excavation area, including site plans and/or sketches showing underground utility lines, sampling locations, and pertinent surficial features;
- The quantity of soil excavated from each soil/excavation area and where the soil is temporarily stockpiled and/or transported;

- Off-site soil management information including daily volumes (quantity and size of trucks), tractor/trailer identification information, time of truck departures from the site;
- The company/persons and type of equipment conducting the work; and
- Details related to problems, difficulties, and/or unexpected conditions encountered.

Additional documents that shall be maintained by the Environmental Monitor include, but may not be limited to, the following:

- Copies of any shipping documents (e.g., manifests, bill-of-lading) for soils brought on-site and/or transported from the Site; and
- Copies of all laboratory analyses of soil brought on-site and/or transported from off-site.

Field notes/logs shall be recorded in permanent ink (black ink is preferred, red ink is not acceptable). Any corrections to the logbook or other written documentation shall be initialed and dated. All corrections shall be shown as a single line through the original. The unused bottom portion of each page shall be lined-out, initialed, and dated.

12.0 HEALTH AND SAFETY REQUIREMENTS

The Contractor(s) and Environmental Monitor shall develop Project Site-specific Health and Safety Plans (HASPs) that will be followed by workers during soil and groundwater characterization, soil excavation, and on-site soil management activities during construction. The HASPs will summarize potential constituents of concern at the Project Site and describe appropriate protective measures to be followed during work at the Project Site. The plans will require that all on-site workers have the appropriate levels of training for the specific tasks being performed.

During development of the HASPs, consideration will be given to current safety standards as defined by the United States Environmental Protection Agency (USEPA), the Occupational Safety and Health Administration (OSHA) or the National Institute of Occupational Safety and Health (NIOSH), health effects and standards for known constituents of concern, and procedures designed to account for the potential for exposure to unknown substances. Available resources for these standards include but are not necessarily limited to:

- OSHA 29 CFR 1910.120 and USEPA 40 CFR 311;
- OSHA 29 CFR 1910 Subparts I and Z;
- USEPA, Office of Emergency and Remedial Response (OERR) Emergency Response Team (ERT) Standard Operating Safety Guides;
- NIOSH/OSHA/U.S. Coast Guard (USCG)/USEPA Occupational Health and Safety Guidelines; and
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

13.0 REFERENCES

GZA GeoEnvironmental, Inc., Phase II Hydrogeologic Investigation, Burgess Pulp Mill and Cascade Paper Mill, Berlin and Gorham, New Hampshire, December 2003.

Jordan Gorrill Associates, Preliminary Geotechnical Investigation, Proposed Pulp Mill Expansion, Burgess Mill, Berlin, NH, James River Corporation, August, 1989.

New Hampshire Code of Environmental Rules, Chapter Env-Or 600 – Contaminated Site Management.

New Hampshire Department of Environmental Services, Field Sampling Procedures Guidance Manual, October 2001 (Revised).

New Hampshire Department of Environmental Services, Master Quality Assurance Project Plan Of The Hazardous Waste Remediation Bureau, Waste Management Division, Revision #4, January 2011).