Appendix A

Project Description

PROJECT DESCRIPTION

RENFREW POWER GENERATION INC.
HYDROELECTRIC REDEVELOPMENT PROJECT

DEVELOPMENT OF THE CLEAR POINT GENERATING STATION AND REDEVELOPMENT OF EXISTING HYDROELECTRIC GENERATING STATIONS

BONNECHERE RIVER - RENFREW, ONTARIO

ONTARIO WATERPOWER ASSOCIATION
CLASS ENVIRONMENTAL ASSESSMENT PLANNING PROCESS

PREPARED BY:

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MAY 2009

OEL-HYDROSYS

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File No. OE7350

May 2009

TABLE OF CONTENTS

LIST OF ATTACHMENTS

1.0 GENERAL INFORMATION

In order to help Ontario to meet a growing power demand and reduce emissions of greenhouse gases, Renfrew Power Generation Inc. (herein referred to as RPG) has recently initiated plans to maximize the waterpower potential of the Bonnechere River at Renfrew, Ontario with the redevelopment of their existing generating stations and the development of a new hydroelectric generating station (currently named the "Clear Point" project) located just downstream from the two existing plants. The project site is located at Dam #1 and Dam #2 on the Bonnechere River in the Town of Renfrew, Ontario. A site location map for the proposed RPG project is found in Figure 1.1. Access to the existing generating plants is off HWY 60 at the Bonnechere River (32 Bridge Avenue); a new access road is proposed for the Clear Point GS site off Mutual Avenue.

This project description provides an overview of the project components, general information on the project's setting and relevant background information, and satisfies the requirements of the new Ontario Waterpower Association Class Environmental Assessment for Waterpower Projects document adopted in October 2008. This Class EA applies only to waterpower projects to which the environmental screening process prescribed under Ontario Regulation 116/01 – Electricity Projects (2001), or as amended under the *EA Act* currently applies. It includes waterpower projects that are listed under Category B of the Electricity Projects Regulation, namely new waterpower projects that have nameplate capacity less than 200 MW and modifications to existing waterpower projects that would result in an increase in nameplate capacity of 25% or more.

The OWA Class EA was developed to ensure that projects are planned in an environmentally responsible manner and in a timely fashion. This Class EA is designed to facilitate coordination with other directly relevant federal and provincial requirements to help ensure effective and efficient public and agency involvement. It also incorporates a best practices approach in terms of public involvement, Aboriginal community engagement, and project design.

The information presented herein will assist all levels of government, First Nations and other Aboriginal communities, interested local and regional groups and the general public to understand the nature of the project; the environment surrounding the project site and the environmental issues associated with the undertaking. The integrated project description will also assist federal decision-makers to determine whether the undertaking triggers the *Canadian Environmental Assessment Act* (*CEAA*). It will enable a federal agency to determine whether it will be a Responsible Authority (RA) under the *Canadian Environmental Assessment Act*

(*CEAA*) or whether it may be able to provide technical expertise and knowledge as an expert department.

This project description will be circulated to the following list of interested parties;

- Ministry of Natural Resources (MNR), Pembroke District Office
- Ministry of the Environment (MOE), Kingston Regional Office
- Algonquins of Ontario (via Jp2g Consultants Inc.)
- Canadian Environmental Assessment Agency, Ontario Regional Office
- Department of Fisheries and Oceans, Prescott Office
- Transport Canada, Prescott Office
- Bonnechere River Water Management Plan – SAC
- President of the Ontario Waterpower Association
- Other Ministries, Agencies and Interested Parties, as appropriate.
- Riparian landowners and tenants
- Other Ministries, Agencies and interested parties, as appropriate

The CEAA Senior Project Manager assigned to the project will ensure that the Project Description is circulated internally to the following parties;

- Federal Department of Fisheries and Oceans, Eastern Office, Prescott, Ontario
- Navigable Waters Protection Group, Prescott, Ontario
- Environment Canada
- Natural Resources Canada
- Indian and Northern Affairs Canada
- other federal departments as deemed necessary by the Agency

A project meeting will be arranged as soon as all key parties are identified and available. The purpose of this meeting is to provide an overview of the project concepts, identify all interested parties' roles and responsibilities and potential permitting and approval requirements; discuss known project-specific environmental values and data/ information gaps; develop public and Aboriginal notification, engagement and consultation plans; identify expected timelines and deliverables for all parties associated with the project.

1.1 General Description of Proposed Project and Location of Study Area

The proposed project is to be located on the Bonnechere River within the town of Renfrew, in Eastern Ontario. Figure 1.1 indicates the location of the project sites at the RPG facility.

The original site layout that is used in the present operation was originally built in 1903. It included what is known today as GS #2 (Lower Plant) comprising a concrete headworks with a stone and log crib dam and two power generation units, 400 kW and 600 kW fed by two wood stave penstocks. The original dam was replaced in 1948 and the penstocks were rebuilt of steel in 1986. In 2002, the 600 kW generator was rewound to 720 kW. The Upper Dam at Highway 60 was constructed in 1908 after the Bonnechere River ran dry. The GS#1 (Upper Plant) and adjoining canal were constructed in 1911 with two 300 kW units used to pump water. In 1952 the water treatment facility was moved and a third unit of 500 kW was installed in GS#1 to bring the total capacity of the two plants to approximately 2 MW, as it is today.

The re-development of the Renfrew Power Generation site in Renfrew, Ontario is a two stage process. The first stage proposes the construction of a new hydroelectric generating station with a capacity of approximately 3.6MW (Clear Point GS) located just downstream of the two existing dams (#1 and #2) owned and operated by the proponent. Assuming that the project is ultimately approved, Renfrew Power Generation intends to construct the new Clear Point GS while maintaining operation of its existing plants (Upper and Lower) at Dam #1 and Dam #2. The Clear Point plant will then be, in essence, the main RPG generating station within the downtown core of Renfrew, and will be in operation continually except in periods of low river flow.

In the second stage of the project it is envisioned that the existing older plants will be redeveloped to increase the generation from 2.0 MW to approximately to 2.5 MW to make efficient use of low flows and flows that exceed the new Clear Point GS capacity. The general layout of these existing plants can be found in Figure 1.2 (Upper Plant) and Figure 1.3 (Lower Plant). The existing generating stations' redevelopment project was planned following a recent overall engineering assessment recommending major investment in order to redevelop the existing five turbines and generators. Considering that some of the generating units have over 100 years of operational wear-and-tear and that technologies have evolved during this period, replacing all of the existing five turbines and rewinding the generators would result in a significant increase in energy production. Furthermore, a dam safety assessment of Dam #1 and its intake canal was completed in 2007 and the rehabilitation of these components was also

recommended. The best opportunity to conduct this rehabilitation is during this proposed project. After redevelopment, the existing plants will operate during low-flow conditions and intermittently at higher capacities depending on the frequency of higher river flows. All facilities will operate as run-of-river systems.

The Clear Point Project will be connected to the 44 kV system of Renfrew Hydro Inc. at the end of Mutual Avenue. The requirement for connection is to rebuild approximately 240 metres of an existing line and add a new 44 kV top circuit in addition to the existing 4200V secondary circuit. The main connection requirements for the Rehabilitation Project are satisfied since the existing connection has ample capacity for the expansion. There will be further Hydro One requirements related to embedded generation on the distribution system supplying the Town of Renfrew. The requirements are presently in draft but are known and are expected to be also adopted by Renfrew Hydro. The Hydro One Inc. and Renfrew Hydro Inc technical guidelines will be incorporated into the detailed engineering.

RPG Inc. owns all of the property on both sides of the Bonnechere River in the area of the potential impact. Through the course of the environmental assessment the project team will undertake the identification and evaluation of alternative design concepts for the proposed Clear Point GS. Each alternative will be examined during the EA process in regard to the potential impacts to the surrounding environmental (natural, socio-cultural and economic) setting of the undertaking.

This proposed project (both stages) will employ the full practical head and flow of the Bonnechere River at the Renfrew dams site, help to provide additional power to the Town of Renfrew and reduce greenhouse gases by displacing coal-fired generation. The proposed new and redeveloped facilities will have an installed capacity of up to 6.1 MW and would comprise three separate power plants

1.2 Contact Information

RPG INC. Inc. will be solely responsible for the development and operation of the proposed electricity generation project; RPG is a for profit business. The Town of Renfrew is the registered owner of all the issued and outstanding shares of the Corporation.

The main contact for the project at RPG is:

Mr. Peter Boldt

Renfrew Power Generation Inc.
32 Bridge Avenue West
Renfrew, Ontario
K7V 3R2
TEL: (613) 433-3715
FAX: (613) 432-9463
Email: pkboldt@renfrewpg.ca

In addition to RPG, the following consultants can be contacted for specific comments, inquiries or information in regards to the environmental planning process or facility engineering:

Environmental Assessment and Related Issues - OEL-HydroSys Inc. (OEL)

Main Contact Address:

Ms. Tami Sugarman
Environmental Assessment and Approvals Coordinator
OEL-HydroSys Inc.
3108 Carp Road, Box 430
Carp, Ontario
K0A 1L0
(613) 839-1453 ext. 229
(613) 839-5376 fax
tsugarman@oel-hydrosys.ca

Engineering and Project Technical Information - OEL-HydroSys Inc.

Main Contact and Address:

Mr. Kearon Bennett, President
OEL-HydroSys Inc.
3108 Carp Road, Box 430
Carp, Ontario
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(613) 839-5376 fax

1.3 Federal Involvement and Required Authorizations

The project is fully funded by the Proponent.

Federal

CEAA may apply to the project since there is a potential to impact fish or fish habitat through alterations to habitat resulting from the repairs to the existing dams and infrastructure, construction of a new waterpower station, and/or changes in water regime. Regulatory approvals under the *Fisheries Act* and the *Navigable Waters Protection Act* may be required. Natural Resources Canada may play a role in the EA under the *Explosives Act.* Other federal agencies may also express an interest in this project (Environment Canada - *Species at Risk Act*, etc.).

Provincial

The project may be subject to the provincial *Lakes and Rivers Improvement Act* and the related policies (*LRIA* Section 14 and 16, Our Sustainable Future - Section 23.1 Water Management Planning, MNR work permits, etc.) and the *Endangered Species Act* of the Ontario Ministry of Natural Resources.

A Permit to Take Water approval and sewage works approval under section 34 may be required under the *Ontario Water Resources Act* during the construction and operations phases of the facility. The *Environmental Protection Act* for measures that ensure the protection of the environment during all lifecyle phases of the project (i.e. Certificate of Approval for Air (Noise)).

Archaeological and cultural heritage issues associated with the project may require review under the *Ontario Heritage Act.*

The Clear Point GS project will be subject to the agreements of the Bonnechere River Water Management Plan (BRWMP). The facility will be designed and operated in accordance with the Bonnechere River Water Management Plan.

Municipal and Other

Building permits may be required from the local municipality. A new substation and interconnection point and capacity load initiate technical and safety requirements of the Ontario

Energy Board and Hydro One Inc, therefore approvals with these entities may also be necessary.

2.0 PROJECT INFORMATION

A general arrangement of the project is presented in Figure 1.2, 1.3 and the Drawing No. G02 – General Layout Plan. The proposed project will include the following components:

Clear Point GS development

- New right wall of the intake canal near its downstream end where an existing old wood crib wall requires a full upgrade.
- Intake, 5.0 m wide and 6.70 m deep equipped with a mechanically operated gate and trash rack.
- Buried penstock of 2.5 m diameter and approximately 600 m in length.
- Access road to the powerhouse (approximately 50m in length).
- 86 m² reinforced concrete powerhouse building containing;
    - One (1) vertical axis Kaplan turbine with a 3.6 MW power capacity
    - Double regulation system.
    - One (1) synchronous generator, brushless type, 4 MVA, 600 RPM.
- Excavated tailrace canal, approximately 10.0 m wide by 20.0 m long

Existing Lower and Upper Plants Re-development

The following structural components are proposed for the redevelopment stage of the project:

- Dam #1 and Canal Wall concrete rehabilitation.
- New lower logs in rehabilitated sluiceways.
- New backup operator for log hoisting or automated gate.
- Repair of a leaking and damaged left side (shore) powerhouse wall.
- Repair and modification of Dam #2 damaged concrete apron.
- Lower plant tailrace hydraulic improvement/modification.
- Lower plant access improvement.
- Lower plant insulation and heating.

The electromechanical configuration for the Renfrew GS redevelopment is proposed as the following:

Upper Plant

- Two new double Francis turbines with a 350 kW power capacity per unit
- One (1) new double Francis turbine with a 500 kW power capacity
- Two completely rewound 400 RPM generators for a 400 kVA power capacity per unit.
- One completely rewound 400 RPM generator for a 650 kVA power capacity.

Lower plant

- Two new double Francis turbines 300 RPM runner speed for a 650 kW power capacity per unit.
- One completely rewound 300 RPM generator for a 750 kVA power capacity per unit.

Access Road

The existing facilities are located on Bridge Street (HWY 60 at the Bonnechere River south of Highway 17 in the town of Renfrew, Ontario. The proposed Clear Point GS site is located just off Mutual Avenue. Mutual Avenue runs northeast off of Bridge Street (Highway 60). A new access road will be extended off of Mutual Avenue northward towards the Bonnechere River, to access the Clear Point powerhouse. The access road north of Mutual Avenue (approximately 50 metres) will have to be constructed and graded.

No new access is required for the redevelopment project, however the access to the Lower Plant will be improved.

Conveyance Structures

For the new Clear Point GS, the existing spillway and intake canal at Dam #1 regulate the normal headwater operation level and limit upstream land flooding. All concrete conveyance structures will be designed to operate safely in the anticipated design conditions.

The intake for the Clear Point GS will be built at the exit of the existing inlet canal of the Dam #1 powerhouse and will allow for its safe operation according to the existing Dam #1 configuration (the existing entrance to the intake canal; the canal walls and the old intake). The proposed water conveyance will consist of a new right wall of the intake canal near its downstream end where an existing old wood crib wall requires a full upgrade. The conceptual design of the intake structure suggest it will be made up of structural concrete that is 5.0m wide and 6.70 m deep and equipped with a mechanically operated gate and trash rack.

A buried penstock of 2.5m diameter and approximately 600 meters in length is proposed. The penstock intake will be constructed just upstream of the existing powerhouse at Dam #1 and will follow the south shore of the river, in an easterly direction, then north to the new powerhouse.

No new conveyance structures are proposed for the redevelopment project.

Powerhouse

A new powerhouse for the Clear Point GS with a footprint of approximately 86 m^2 will be located just southeast of Clear Point. The foundation will be made of mass concrete with a steel structure above the flood water level. The power house is proposed to be equipped with one vertical axis Kaplan turbines.

For the redevelopment project the footprint of the existing powerhouses will not change.

Tailrace

The proposed Clear Point powerhouse tailrace canal would be located at the exit of the new powerhouse. The tailrace canal would be approximately 10.0 m wide by 20.0 m long.

There is no change to the tailraces of the existing plants.

Interconnection

A new outdoor electrical substation will be constructed for the Clear Point project and interconnection will involve upgrading approximately 240 m of existing pole line to 44 kV. For the redevelopment project, the intention is to reuse the existing connections, however upgrading to 44 kV may be justified, which would involve construction of new outdoor substations.

All components of this development will be addressed to the public within the public consultation process of the environmental assessment.

2.1 Installed Capacity and Annual Energy Output

Flows on the Bonnechere River have been measured at Water Survey of Canada stream flow gauge 02KC009 near Castleford just downstream of the project. Data published by the Water Survey of Canada for the years 1922 to 2002 (excluding incomplete years 1958 to 1962) were used for the purposes of estimating power and energy potential at the Renfrew site.

Years from 1980 to 2005 were then used to select a design flow in consideration of the fact that the later years' relatively lower flows provide a more conservative indication of what future flows might be for the Bonnechere River at Renfrew.

A preliminary analysis of the site was undertaken by OEL-HydroSys Inc. using RETScreen® International software. It has been assumed that a minimum ecological flow of 1 m^3/s will be maintained in the river between Dam #1, Dam #2 and the new tailrace canal.
The results of the analysis indicate that a project can be developed that has the following key parameters:

Clear Point GS

- Design Gross Head: 24.95 m
- Design Flow: 19 m3/s
- Installed Capacity: 3.6 MW
- Average Annual Energy: 16.96 GWh
- Average Annual Capacity Factor: 55%

Redevelopment of the Existing Plants

The residual flow resulting from the optimized operation of the proposed new Clear Point project will be the available flow for the Redevelopment project. Considering that the design flow for Clear Point GS project is 19 cms and a residual flow of 1 cms must be kept in the river at all times, the available flows for the redeveloped Upper and Lower plants will be limited to the excess flow available. The turbines in the redeveloped plants, which will be smaller than the turbine in the Clear Point plant, will also allow generation during low flow periods when the proposed Clear Point plant may be shut down (when flows are less than about 3.8 cms). The plants will also operate intermittently depending on the frequency of higher river flows above the Clear Point GS maximum capacity.

Upper Plant

- Design Gross Head: 11.7 m
- Design Flow: 14 m3/s
- Installed Capacity: 1.2 MW
- Average Annual Energy: 2.64 GWh
- Average Annual Capacity Factor: 25%

Lower Plant

- Design Gross Head: 12.7 m
- Design Flow: 14 m3/s
- Installed Capacity: 1.3 MW
- Average Annual Energy: 2.70 GWh
- Average Annual Capacity Factor: 24%

The details regarding the operating ranges of this project will also be determined and evaluated. During our initial evaluation of the project, the minimum residual flow currently experienced at the existing facility will not be changed but will be experienced over a longer period of time. The actual minimum achievable residual flow required to sustain the aquatic habitat in this extended length of the impacted area of the project will be confirmed through the course of this EA.

The scope of any additional field investigations required for this project will be discussed with the MNR and DFO and other relevant agencies and will be reviewed and if necessary modified through consultation.

2.2 Project Activities

The preliminary project schedule indicates a schedule of approximately one year from date of commencement of the environmental assessment to the date of commissioning of the Clear Point GS. The construction and commissioning of the redeveloped existing plants will follow the

Clear Point GS commissioning. This schedule will be continuously refined and revised as the project moves forward.

The terrestrial and aquatic habitats may be impacted by the construction of the hydroelectric facilities during the planning, construction, operation and decommissioning phases. Several of these potential impacts may be reduced or eliminated through the use of mitigation measures and scheduling of in-water work. These mitigation measures will be determined through the EA process.

Planning Phase

Biological assessment activities that were carried out during the planning phase of the project last year had negligible negative effects on the environment. Any geotechnical drilling or sampling, if required, for the planning phase of the site have the potential to have a negative effect on the environment.

Construction Phase

During the construction phase, several activities have the potential of causing negative impacts on the environment. The following steps are proposed to be undertaken in approximate order;

1. Clear Point GS Powerhouse construction (excavation, trenching and de-watering) and repairs to existing powerhouse.
2. Clear Point GS Penstock construction - excavation, blasting and/or cleaning of bedrock (required methodology has yet to be determined (required method is yet to be determined (i.e. the need for explosives))). If explosives are required for blasting at the site they will be brought in on an as needed basis by a blasting contractor. If required, a blasting plan will be developed for this phase of the project. No temporary factory will be required at or near the site and the project will not require a change of location of an existing factory. A magazine to store explosives will not be required at or near the project site. A completed Natural Resources Canada Explosives Questionnaire can be found in Appendix A. Should blasting in or near water be required, Fisheries and Oceans Canada's guidelines for the use of explosives in or near Canadian Fisheries Waters will be followed.
3. Repairs to Dam #1 and #2 and new Intake construction for Clear Point (set-up of coffer dam or silt curtains, blasting and/or cleaning of bedrock (see notation in #2).

4. Tail race construction of new Clear Point GS (excavation, trenching, filling and compacting (in water work requiring silt curtains)).

The potential impacts associated with the construction phase activities are:

1. Decrease in surface water quality
    a. sedimentation from cleared shorelines; and
    b. re-suspension of sediments during in-water activities.
2. Loss of aquatic and terrestrial vegetation
3. Impact to Species at Risk
    a. Butternut
4. Alteration, disruption and/or destruction of fish habitat
    a. change to fish habitat through alterations to the shoreline contours.
5. Loss of benthic invertebrates
    a. loss of benthic invertebrates as a result of sedimentation.
6. Disruption to wildlife and birds
    a. disruption to wildlife and bird populations as a result of the increase in noise and light pollution; and
7. Increased noise pollution
    a. increased noise pollution as a result of construction operations.
8. Accidents or malfunctions
    a. spills from project equipment during construction activities.

Operational Phase

The potential impacts associated with these activities are:

1. Alteration, disruption and/or destruction of fish habitat
    a. loss of fish habitat through change in area and timeline in which residual flows are experienced,
    b. alteration of fish habitat due to the increased velocity of the newly constructed tailrace.
2. Disruption to wildlife and birds
    a. increase in noise pollution from the operation of the powerhouse.
    b. loss of habitat
3. Accidents or malfunctions
    a. spills from project equipment during maintenance activities.

Decommissioning and Abandonment Phase

At the end of the life cycle of the facility the removal of equipment and hazardous material will be required to decommission the site using an environmentally sound approach.

The potential impacts associated with these activities are:

1. Decrease in surface water quality
    a. sedimentation from cleared shorelines.
2. Disruption to wildlife and birds
    a. disruption to wildlife and bird populations as a result of the increase in noise pollution; and
    b. loss of habitat (vegetation).
3. Alteration, disruption and/or destruction of fish habitat
    a. loss of fish habitat through alterations to the shoreline contours;
4. Alteration of Fish habitat
    a. alteration of the channel created on in the tailrace;
    b. change in the flow regime.
5. Increased noise pollution
    a. increased noise pollution as a result of decommissioning activities.
6. Accidents or malfunctions
    a. spills from project equipment during decommissioning activities.

2.3 Resource/Materials Requirements

The project involves the generation of renewable hydroelectric power. This production process will require the continuance of use of the water resources (current and head) of the Bonnechere River.

2.4 Waste Disposal

An amount of construction related waste materials as well as excavated bedrock and soil may be produced at the site during construction and decommissioning phases. These materials can be

deposited at the local municipal landfill or used on site (infill material for slope protection and/or other uses on site).

Waste generated over the operational stage of the project is similar to that generated at the existing generating stations and includes waste lubricating oil water filters, spare parts and replacement parts (electrical, metal, fixtures and equipment). This waste material can be sent to local area solid and hazardous waste management facilities.

3.0 PROJECT SITE INFORMATION

3.1 Project Location

The project location and components are shown in Figures 1.1 to 1.3and Drawing No. G02. Figure 1.1 shows the location of the project relative to the nearest town, Renfrew, Ontario. Figures 1.2 and 1.3 and Drawing No. G02 show the proposed location of the key project components relative to the Bonnechere River.

Municipality Lot, Concession and Legal Description

The site is located just off Mutual Avenue. Mutual Avenue runs northeast off of Bridge Street (Highway 60), south of Highway 17 in the town of Renfrew, Ontario (Horton Township).

Global Positioning Station UTM Coordinates of the site

The approximate UTM coordinates of the dam are as follows:

UTM NAD 83, Zone 18
Easting - 368170
Northing - 5037750

Geographic Coordinates: Latitude (d,m,s), Longitude (d,m,s)

The approximate geographic coordinates of the dam are as follows:

Latitude: 76 degrees, 41 minutes, 11.22 seconds west
Longitude: 45 degrees, 28 minutes, 56.51 seconds north

There are municipal water supply intakes and water pollution control plants upstream and downstream, respectively, of the project site located within Reach 3 and Reach 2, respectively. The Town of Renfrew municipal water supply intake is located within Reach 3, upstream of the proposed facility intake. The Town of Renfrew new waste water treatment plant outfall is located approximately 500m downstream of the proposed new Clear Point GS facility. The presence of other land and water uses within the area of influence along the Bonnechere River will be investigated during this EA.

The area of influence along the Bonnechere River involved in this project is privately owned. However, the opinions and comments from local riparian landowners upstream and downstream as well as landowners along Mutual Avenue of the project site and other local stakeholders will be solicited during this Environmental Assessment process.

3.2 Environmental Features

Throughout the investigations into site specific and regionally important conditions that may be impacted by the development of the Clear Point generating station and the redevelopment of the existing facilities, RPG Inc. is prepared to alter the proposal in order to mitigate these impacts which may adversely impact the financial viability of the project. RPG Inc. perceives itself to be a socially and environmentally responsible proponent of waterpower.

RPG Inc. intends to involve all essential agencies of the provincial and federal governments in our decision making processes as deemed appropriate given the requirements of the Ontario Waterpower Association Class EA, CEAA environmental assessment requirements and the MNR water management planning processes. The plans and strategies for dealing with site features that may experience a potential impact from the project as well as any pertinent information gaps are considered in the environmental screening as summarized below:

- Natural environmental considerations such as terrestrial and aquatic habitat surveys, and gathering of supplementary information on species use;
- Social and cultural environmental considerations relating to access, municipal and other land use, aboriginal values and traditional activities, recreational use and tourism.

Natural Environment

As a responsible developer and operator of waterpower resources, the principles of the aquatic ecosystems guidelines within the *Water Management Planning Guidelines for Waterpower* as well as the *Federal Requirements for Waterpower Development Environmental Assessment Process in Ontario – Practitioner's Guide* are recognized and embraced.

The following natural environment features have been identified to be examined for within the project area:

- aquatic and terrestrial habitat
- local fisheries and aquatic and terrestrial vegetation
- Species at Risk (Endangered or Threatened under SARO and/or COSEWIC)

The proponent and the consulting team biological sub-contractor (Bowfin Environmental Inc.) had a preliminary site meeting with the Ministry of Natural Resources representatives at the project site in the May 2, 2008 to discuss the project and the potential area of impact.

A review of background information was conducted to augment the findings of any field surveys and to identify potential environmental concerns. The background review consists of reviewing information from the Ministry of Natural Resources Pembroke District, Natural Heritage Information Database and the Environment Canada Species at Risk Website. The following address data gaps within the natural environment surrounding the site:

Fisheries and Vegetation

An assessment of the terrestrial and aquatic habitats in the immediate area of the proposed facility site was conducted in order to be able to describe the habitats, assess the potential for species to be found in the area and to assist in the route selection and design process. Conducting preliminary studies early on in the design phase often results in savings to the proponent as engineering and feasibility costs associated with relocating and redesigning can be minimized at the start of the project.

The requirements specifically related to aquatic species, fisheries habitat and navigable waters are specifically the mandate of the federal Department of Fisheries and Oceans and Transport Canada (Navigable Waters Protection Branch). Detailed information pertaining to these issues is addressed in Section 4.0 of this project description.

ANSI, Provincially Significant Wetlands, other Value Issues (i.e. trapping activities, public access points, campsites, etc.)

In communication with the local district office of the MNR for another project that covered the same area of interest it was identified that there are no areas of natural and scientific interest (ANSI's) or provincially significant wetlands (PSW's) that have been confirmed within the area of impact for the project. There are no provincial parks or conservation reserves in the immediate vicinity of the site. The area of influence for the project is privately owned and therefore no trapping or baitfishing activities are present and no public access points are available. The area of the project site is not safe for public activity and access for fishing, camping and other river uses is not permitted on the private owned land.

Social-Cultural Environment

Understanding the relationship between the socio-cultural-economic environment and the natural environment of a waterpower project proposal is critical to the successful development of the proposed project. Once again, the area of concern for the project is limited to lands privately owned by the proponent so the social-cultural uses of the area are limited, however the aesthetic impacts of the project will be considered. The benefits and costs, both monetary and non-monetary, associated throughout the life cycle of the project will be determined. The objective of the planning phase of the project is to minimize negative impacts and maximize positive benefits. The land-use information provided by the District MNR provides a guide to known potential issues. The next step is to consult with the local community (First Nations and other Aboriginal groups, individuals, recreational, and social and business groups) and the broader community that utilize both the land and water surrounding the proposed project site. By listening to their concerns we can investigate how incorporate this information into the design and operational planning phases of the work.

The following sections address potential socio-cultural issues and our intended approach in regards to the project site and the area of impact that is thought to be affected by the proposal.

Aboriginal Values and Traditional Activities

The site falls within the area of the Algonquin of Ontario land claim. Algonquins of Pikwàkanagàn and Bonnechere Algonquin First Nations have traditionally used the area. The Proponent will follow the aboriginal engagement protocol that has been set out by the Algonquins of Ontario. Examinations of impacts (actual and potential) related to aboriginal, heritage and cultural issues are required. The Algonquins of Ontario and their consultants, Jp2g

Consultants Inc. were introduced to the project early in the planning process by letter in April 2009. The MNR District Resource Liaison Officer, Ken McWatters has suggested that consultation throughout the project with the Algonquin First Nation is necessary and any questions, or concerns related to the approach should be directed to Mr. Ken McWatters at the District MNR office. There has been no formal responses to date to the April introduction letter, Jp2g Consultants Inc., have indicated that the Algonquins of Ontario will follow the standard protocol for engagement and will respond in due time. In the letter the proponent invited the Algonquin Nation Representatives to meet with the project team at their earliest convenience.

Historical/Cultural/Archaeological Sites

The close proximity of the Clear Point GS site is an automatic trigger of high archaeological potential, and despite the existing facility upstream, there may be an archeological potential at the new site. For this reason, it is essential that work done at any facility by a waterway should be assessed by an archaeological consultant. Therefore, a Stage 1 archaeological assessment and possibly Stage 2, of the site will be undertaken by the proponent by a licensed archaeological consultant as a part of this approval process.

Access Road Location

A short access road is proposed to the Clear Point GS just off of Mutual Avenue and upgrades to the access road to the existing Lower Plant are planned; no significant issues are anticipated in regards to this construction work other than general construction related issues.

Land Tenure

The riparian land surrounding the site (upstream and downstream) along the Bonnechere River is privately owned by the proponent. The bed of the Bonnechere River is owned by the Crown in the immediate area of the project. As the project does not propose to alter the current operating regime (water levels and flows) there is no impact to shorelands above or below the dam outside the identified project area of impact. The District MNR has advised that a Disposition of Crown land (Section 14, LRIA) will not be required for the modifications of the facility structure (see correspondence in Appendix B).

Settled Areas

The project site is located in the community of Renfrew. During the Class EA, the socio-economic impact on the region immediately surrounding the project site will be studied. Residents of Town of Renfrew will be informed of public consultations to be held regarding the

proposed generating station development through communication with the local municipality (public information sessions/meetings) and advertisements in local news media.

Tourism and Recreation

The Bonnechere River watershed is a popular tourist and recreation area. Restrictions on access and use in the immediate area of the civil works related to the project will not change from the existing situation which is in place to ensure public health and safety and the security of assets. Local recreational groups will be included on the notification list for the Class EA public consultation process. The general public will be informed of opportunities to participate in the process through public consultation meetings and the local news media.

Transmission Line Route Location

The location of the transmission line proposed to be utilized for the proposed upgrade to the existing waterpower development is provided in Section 2 of this Project Description. As with all technical aspects of this project, the selection of an interconnection route will be considered in the planning process. Any new proposed transmission line routes will be included in any archaeological assessment undertaken at the site.

4.0 Additional Requirements Related to Fish, Fish Habitat and Navigable Waters

4.1 Environmental Features

Estimated Drainage Area

The total drainage area of the Bonnechere River above the project's intake on the Bonnechere River is estimated as approximately 2022 km^2.

Potentially Affected Bodies of Water

The project will be operated in line with the current operational plan established for the existing infrastructure. Flow control and water level regulation to be within the existing Dam #1 and Dam #2 spillways design as approved by the "Bonnechere River Water Management Plan" amended in March 2005; it is anticipated that a new revision to the Plan will be issued at the start of the 2009 summer season.

The Proponent's main aim is to get detailed habitat descriptions for the immediate area, provide additional community descriptions and determine what changes in habitat can be expected (i.e. depth, velocity, thermal regime, water quality). With details on the available fish habitat and utilizing a large list of potential species, which also includes potential SAR, as well as additional information gathered from sampling within those areas which will receive the most impact (primarily, the river between the existing Lower Plant tailrace canal exit and the proposed tailrace of the Clear Point GS and to some extent the area between Dam #1 and the proposed Clear Point GS) with a variety of sampling methodologies and using current scientific literature and interviews with experts the consulting team will be able to form a good understanding of the habitat, its potential to sustain healthy populations as well as potential impacts.

4.2 Biological Assessments

In order to form an understanding of the potential impact for this project the following work is required: a background review, habitat description of the existing channel between Dam #1 and the proposed outlet of the Clear Point GS, fish community sampling, and an assessment and/or inventory of the potential for Species at Risk to occur.

Background Review

A background environmental review was conducted for the study area in order to identify potential terrestrial and aquatic environmental concerns. The background review consisted of reviewing information from Pembroke District Office of the Ontario Ministry of Natural Resources, Prescott District Office of Department of Fisheries and Oceans, the Natural Heritage Information Database and the Environment Canada Species at Risk website.

Habitat Description

Habitat description and mapping was conducted in the area of impact during 2006, 2007 and 2008. During the site visits the following natural environment features were examined for within the project area: significant portions of the habitat of endangered or threatened species, wetlands, fish habitat, and significant Areas of Natural and Scientific Interest.

The habitat assessment consisted of creating transects across the Bonnechere River along which the following information was obtained: bank height, depth, substrate, aquatic vegetation, cover, and water velocities. GPS coordinates would be obtained for the transect endpoints and the area would be mapped.

Fish Community Sampling

The fish community was sampled within the project area using a backpack electrofisher, seine netting and gill netting during the spring, summer and fall during 2006 and 2007. All fish were identified, measured and live fish were released. Dead fish were disposed of at the Renfrew landfill. Benthic invertebrate were collected and preserved and were processed to the sub-order following the Ontario Stream Assessment Protocol (OSAP).

Reporting

The report will include a description of the terrestrial and aquatic habitats; a list of species observed and would identify any features of interest or species of concern. The report will also include potential environmental impacts which could occur as a result of the proposed project. In order to have a full understanding of the impacts to the aquatic environment, information on the following are collected:

- impacts of water levels, velocities, and temperature (how far downstream, time of year of impact);
- construction details and timing;

The report will also recommend any required monitoring for the project.

4.3 Use of Waterway

Canoe Routes/Portages and Motorized Watercraft

The Proponent is aware that the Bonnechere River upstream and downstream of the project site is a popular recreational area; local recreational groups will be included on the notification list for the consultation process.

Watercraft have no access to the project area; although there is public green space nearby, there is no public swimming in the vicinity of the project site.

Dams/Control Structures

The proposed generating station would be located near existing facilities owned and operated by RPG Inc. The redevelopment project and the newly proposed Clear Point GS will be designed to

be compatible with the operating regime of the existing infrastructure as well as other facilities as mandated by the Bonnechere River Water Management Plan.

Water Management Plan

The Clear Point GS project will be subject to the agreements of the Bonnechere River Water Management Plan (BRWMP). The facility and operating plan will be designed in accordance with the Bonnechere River Water Management Plan. An administrative amendment will be required for the new works and the agreed upon residual flow value; the appropriate approval process under Section 23.1 of the LRIA will be followed as designated.

5.0 PUBLIC CONSULTATION PROCESS

The following parties were included in an early distribution of the Project Description to initiate the agency consultation process;

- Ms. Joanna Samson, Water Resources Coordinator, Pembroke District, Ministry of Natural Resources, Pembroke, Ontario
- Ms. Vicki Mitchell, EA Coordinator, Ministry of the Environment, Environmental Assessment and Approvals Board, Regional Office, Kingston, Ontario
- Ms. Linda Boeheim, Senior Program Officer, CEAA Ontario Region office in Toronto, Ontario
- Mr. Tim Markus, Transport Canada, Prescott Office
- Mr. Mark Ferguson, Department of Fisheries and Oceans, Prescott Office
- The Algonquins of Ontario (via Jp2g Consultants Inc. and cc. Mr. Ken McWatters, Resource Liaison Officer, Pembroke District, Ministry of Natural Resources, Pembroke, Ontario)
- Bonnechere River Water Management Plan Standing Advisory Committee (BRWMP-SAC)
- Mr. Paul Norris, President, Ontario Waterpower Association

The submission of this Project Description to the following parties (planned for mid-June) along with the formal Notice of Commencement will initiate the Public Consultation Process for the approval processes outlined above;

- Ontario Ministry of Northern Development and Mines (NDM), Sudbury

- Ontario Ministry of Culture (MC), Thunder Bay
- Ontario Ministry of Aboriginal Affairs, Toronto
- Ministry of Municipal Affairs and Housing (MMAH), Kingston
- Ministry of Transportation (MTO), St. Catharines and Kingston
- Ministry of Community and Social Services (MCSS), Ottawa
- Hydro One, Toronto
- Town of Renfrew
- Renfrew County
- Adjacent and potentially affected riparian landowners/tenants
- Other directly interested or affected parties

    - Ontario Fur Managers Federation
    - Bonnechere River Watershed Project
    - Renfrew County Stewardship Program
    - Ottawa Riverkeeper
    - Ottawa River Institute
    - Local Heritage and Historical Society
    - Local Naturalists and Recreation Clubs

Public consultation will be conducted throughout the project and the proponent and the project team will work closely with government and agency representatives listed above; with the community and public interests groups through public meetings and information sessions, and through the submission of the draft documents for public review.

Above and beyond the proposed public consultation process, the MNR WMPG indicate that for an amendment to a Water Management Plan, the Standing Advisory Committee and other regional power site operators (Multistream Power Corporation, Eganville Generation Corporation Inc., Vornweg Waterpower and Ontario Power Generators) will be included in the consultation program. In addition, depending on the category assigned to the amendment request by the MNR Regional Director, formal public consultation, public information sessions and notices on the EBR's Environmental Registry, may be required.

6.0 PROJECT SCHEDULE

The proposed schedule for the completion of this portion of the project is presented below.

Task	Proposed Date of Completion
Complete field survey work towards the detailed design work.	Completed
Conceptual design in consultation with client	July 2006- ongoing
Submit an Integrated Project Description to all parties	Herein
EA coordination meeting with identified key government agencies.	June 2009
Early Notification and Consultation with Algonquins of Ontario to identify any issues or concerns	Completed April 2009 and May 20th, 2009 (meeting proposed for June or July 2009)
Review of Project Description Document by MOE, MNR other agencies and public.	June 2009
Complete field investigations related to Environmental Screening Process.	Completed August 2006 to October 2007
Development of preliminary drawings for inclusion in DRAFT Environmental Screening (ESR) document.	June- onward

Task	Proposed Date of Completion
Conduct Agency and Public Consultation Meetings (May or may not coincide with the Federal Information Meeting and public consultation program.)	June 25, 2009
Prepare and submit DRAFT ESR document based on current preliminary design and field studies to interested Agencies for review.	August 2009
Issue Notice of Completion of ESR and begin 30 day Public and Agency Review	September 2009
Public and Agency Review Period	September-October 2009
Resolve any remaining identified issues/disputes, if any. **OR** Issue Statement of Completion.	October 2009
Approval of Federal CEAA Screening Report	November 2009
End of Environmental Screening Process	
Proceed to detailed specifications and design work for the purpose of tender documents for Clear Point Project.	Fall 2009
Proponent submits Final Plans and Specifications to MNR and TC for Clear Point Project.	Fall 2009
Obtain Lakes and River Improvement Act Section 14 approval Obtain LRIA Order under Section 23.1, amendment approval Obtain Federal permitting approvals for Clear Point project	Fall 2009
MNR work permit applications (LRIA - work permit for construction activities on private lands that have the potential to affect waters) and MOE permitting for Construction of Clear Point	Work in Water window for

Task	Proposed Date of Completion
submitted and approved.	Bonnechere River
Construction Phase	2009-2010
If required, Proponent submits Permit to Take Water (PTTW) and C. of A. application with MOE for daily and/or annual taking of surface water.	Summer 2010
Commissioning of facility	Dependant on construction schedule – proposed for Fall 2010

7.0 CLOSING

We trust that this general information is provides an adequate overview of the project and will enable all interested participants to understand, evaluate and provide input and expertise to the planning process for the proposed undertaking.

RPG Inc. looks forward to meeting with federal agencies, provincial agencies and other concerned parties at their request.

Please do not hesitate to contact the project consulting team (Tami Sugarman) or the proponent if you have any questions or require additional information.

Sincerely,

RPG Inc. Power Corporation

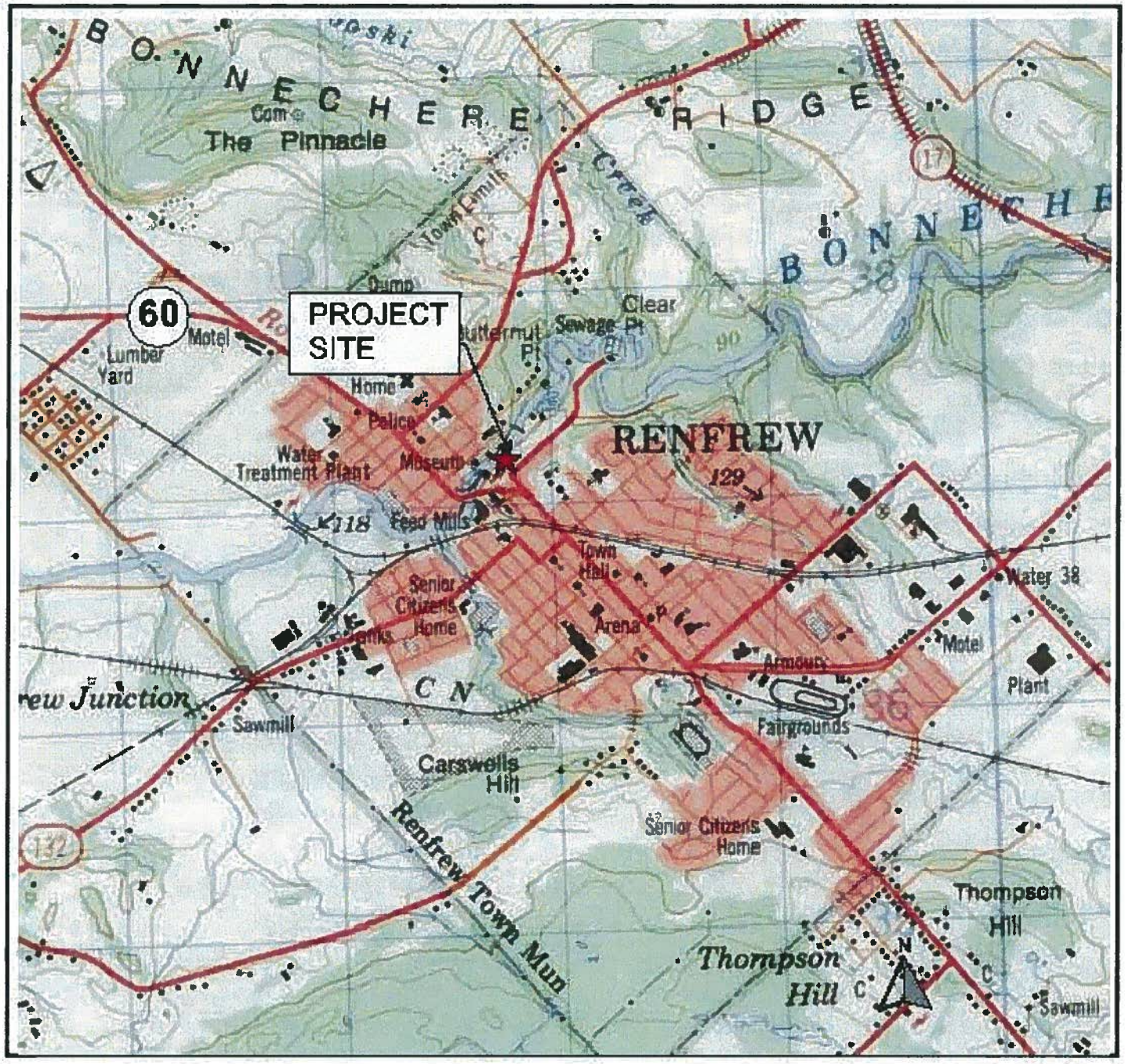


FIGURE 1:
SITE LOCATION MAP
RENFREW POWER GENERATION PROPOSED HYDROELECTRIC UNDERTAKING

OE7350-SLM

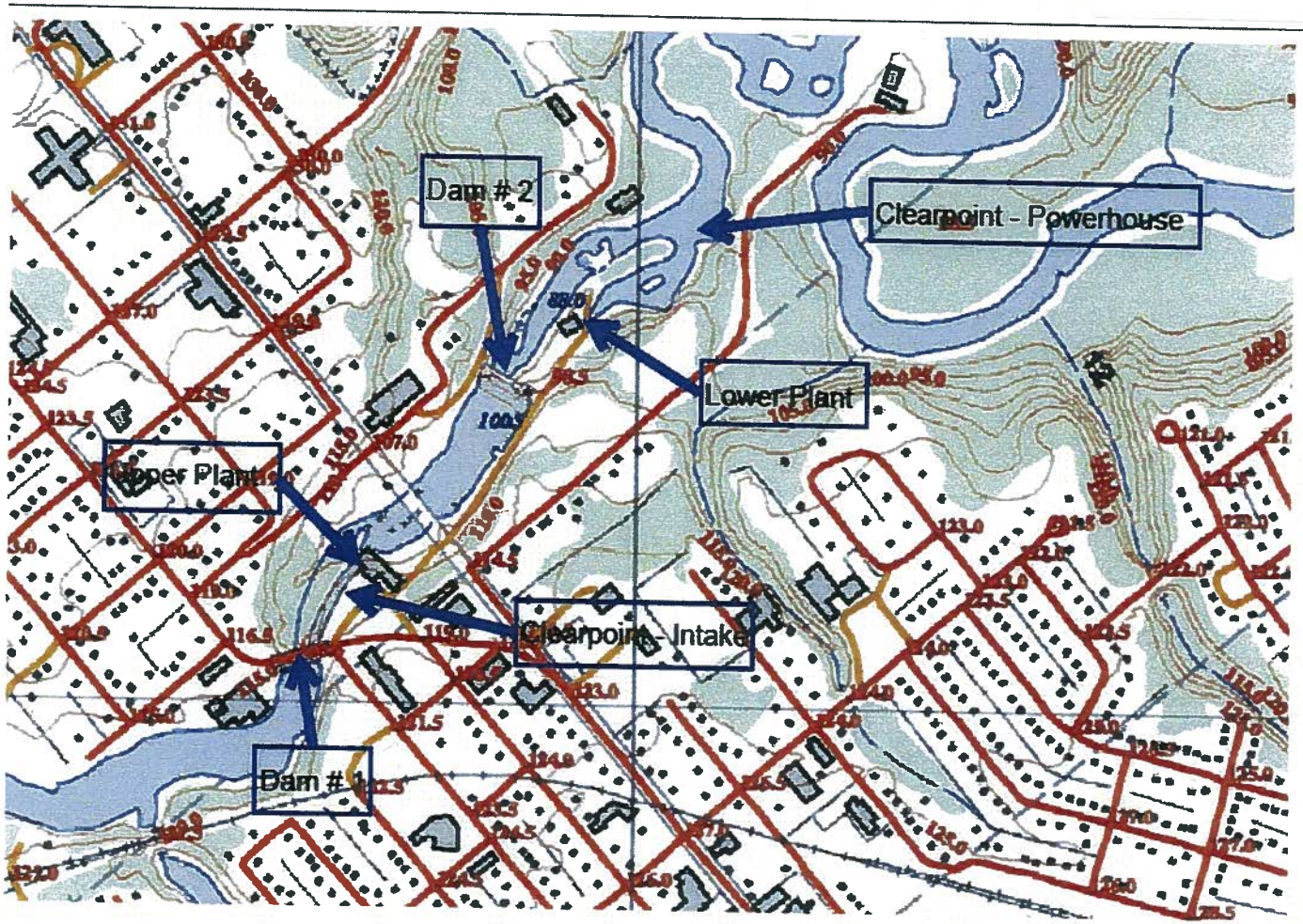


Figure 1.1 – RPG Projects Site Map

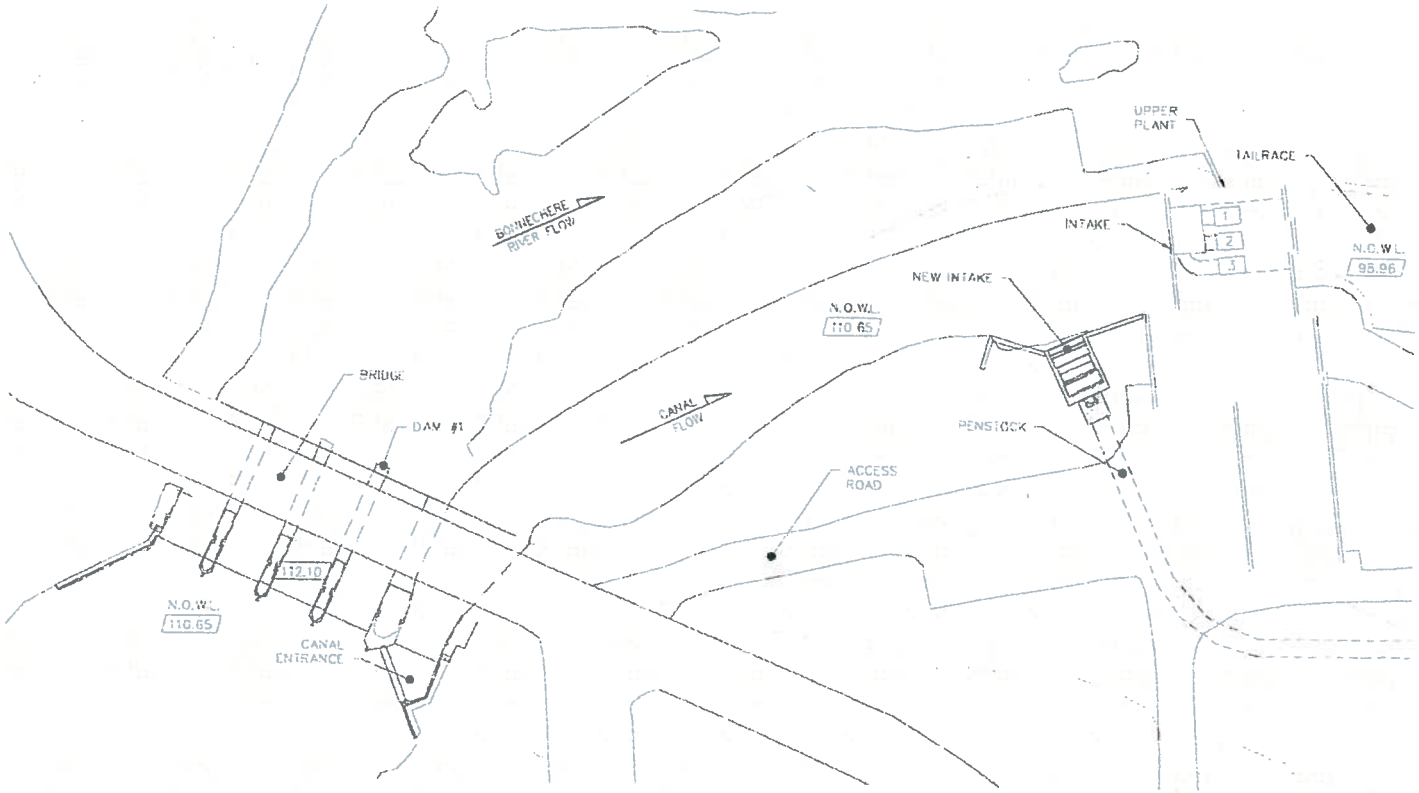


Figure 1.2 – General Arrangement – Upper Plant

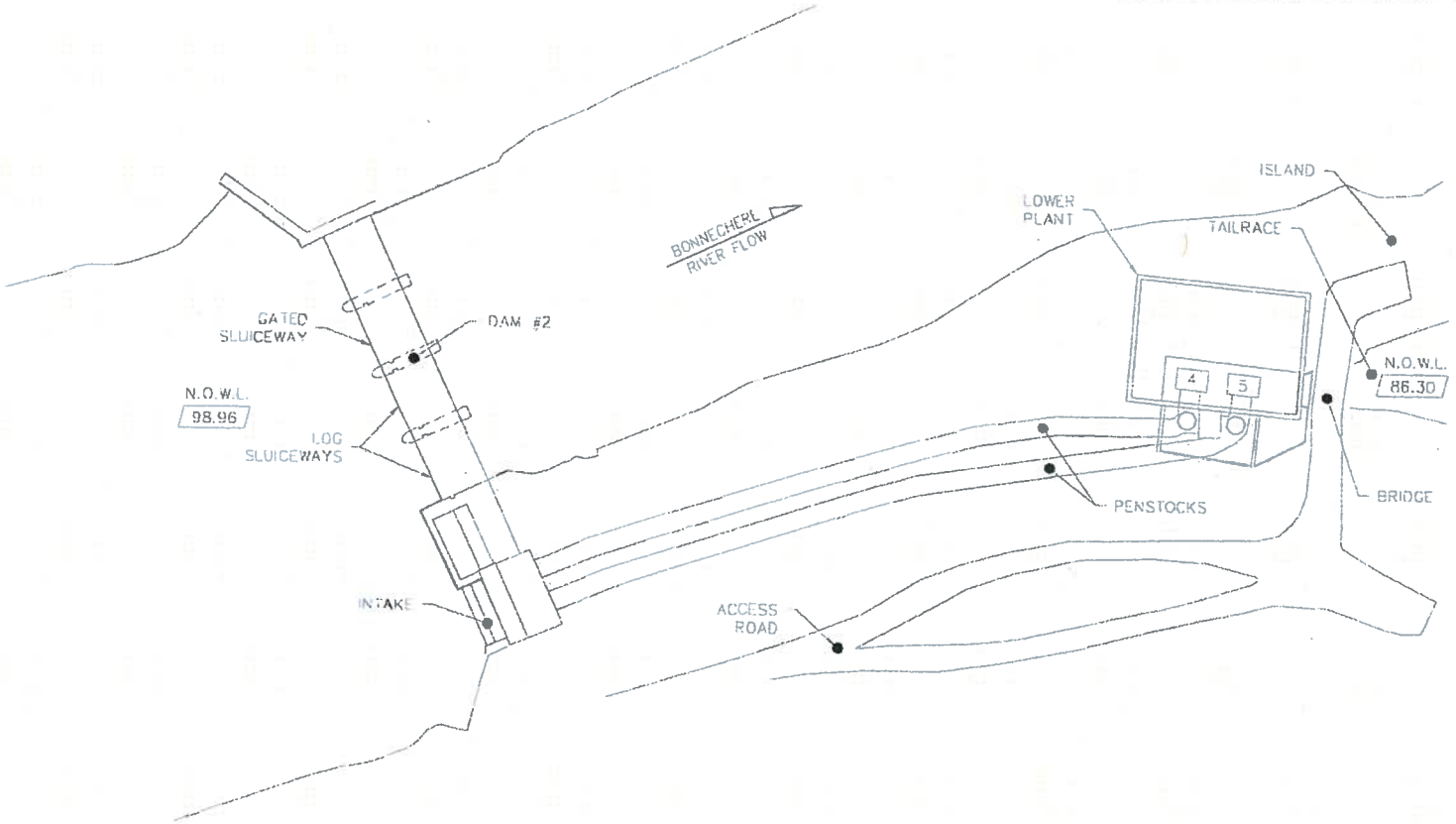
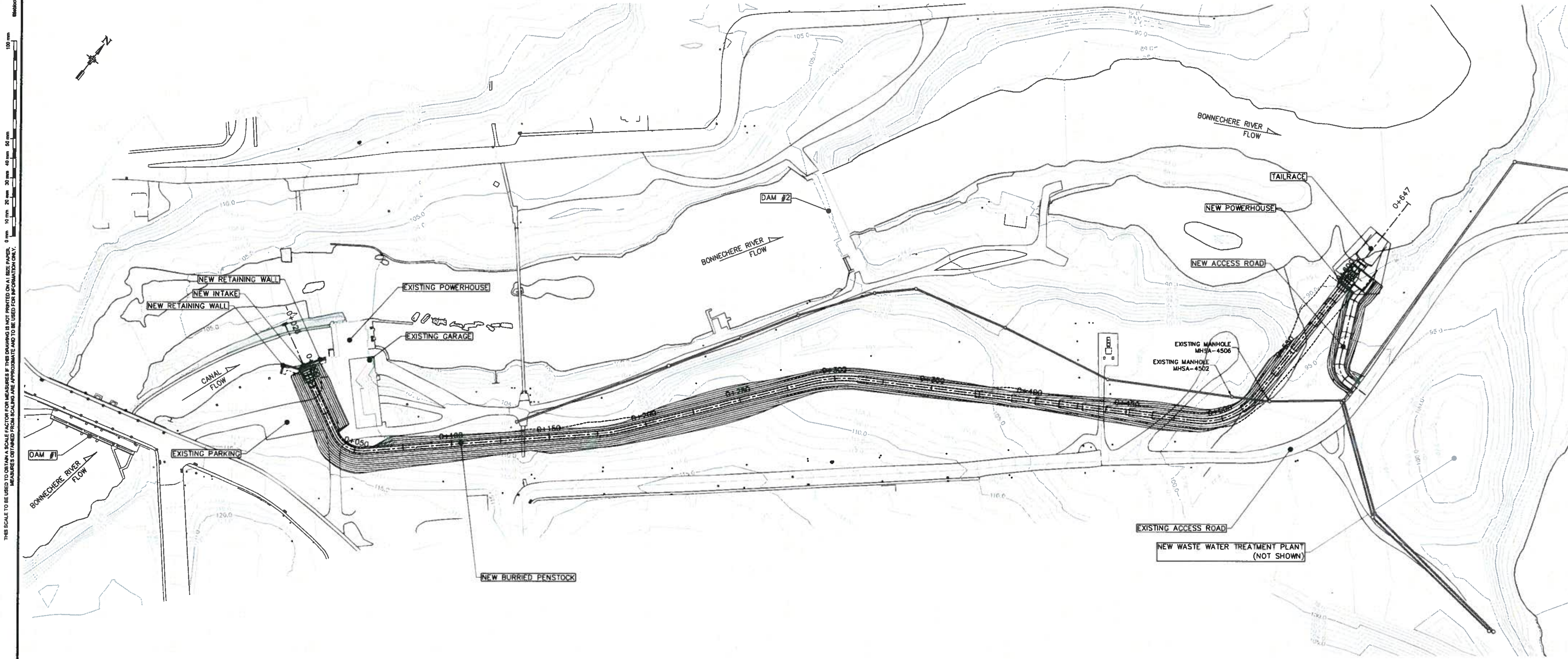


Figure 1.3 – General Arrangement – Lower Plant



PLAN

1:1000

General Notes

1. DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS.
2. ALL DIMENSIONS AND ELEVATIONS ARE APPROXIMATE.
3. EXISTING GROUND INFORMATION IS APPROXIMATE.
4. ROCK PROFILE MUST BE VALIDATED PRIOR TO FINAL DESIGN.
5. COORDINATE SYSTEM: NAD83, ZONE 18, UTM.

Legend

ASSUMED ROCK	GRATING
ROCK TO BE EXCAVATED	EXISTING STRUCTURE
ASSUMED GROUND	E.J. EXPANSION JOINT
NEW FILL	N.O.W.L. NORMAL OPERATION WATER LEVEL
NEW CONCRETE	M.O.W.L. MAXIMUM OPERATION WATER LEVEL

NOT FOR CONSTRUCTION

PRINT DATE: 2009/05/26

1:1000 — 0 m, 10 m, 20 m, 30 m, 40 m, 50 m / 0 mm, 10 mm, 20 mm, 30 mm, 40 mm, 50 mm

THIS SCALE TO BE USED TO OBTAIN APPROXIMATE DIMENSIONS FOR INFORMATION

No	Revision	Date	Init. ing./cad
A	Summary engineering report	2008-03-03	S.V./S.G.

Address:
OEL - HydroSys
440 Rene-Levesque Blvd West, suite 350
Montreal, Quebec, Canada
H2Z 1V7
www.ottawaengineering.com
Tel.: 514 393-2780
Fax.: 514 841-6111
Project Manager: Kearon Bennett, P.Eng.

Client: RENFREW POWER GENERATION INC.
32 Bridge Avenue West
Renfrew, Ontario, K7V 3R2

Projet title: CLEAR POINT SMALL HYDRO PROJECT

Drawing title: GENERAL LAYOUT PLAN

Project number: OE5459-01
Designed by: M.Grignon, Eng.
Drawn by: S.Gagnon, Tech.
Verified by: S.Vittecoq, P.Eng.
Revision: A
Drawing N°: G02

APPENDIX A

NRCan Explosives Questionnaire

Natural Resources Canada | Ressources naturelles Canada

Natural Resources Canada and the *Explosives Act* In the Context of *Canadian Environmental Assessment Act*

Natural Resources Canada's involvement in environmental assessment among others, results from the application of certain Acts under the authority of the federal Minister of Natural Resources. One of these Acts that can trigger the *Canadian Environmental Assessment Act* is the *Explosives Act* which regulates the manufacturing, testing, sale, storage, transportation and importation of explosives as well as the use of fireworks.

Specifically, by virtue of this Act, Natural Resources Canada (NRCan) could become involved in the environmental assessment (EA) of projects by issuing, if required, a licence for the manufacture (i.e., factory) and/or storage (i.e., magazine) of explosives (Section 7(1)(a) of the *Explosives Act*).

The issuance of such a licence could be subject to federal EA requirements under the *Canadian Environmental Assessment Act* (CEAA). Under CEAA, an EA requires that all environmental effects of a project be taken into consideration before a decision is made concerning its implementation.

This questionnaire is intended to assist project proponents and NRCan in determining whether a licence under Section 7(1)(a) of the *Explosives Act* is required and whether this triggers an EA under the CEAA. Additional guidance is provided on NRCan's EA requirements should one be required.

Step 1

Will explosives be used? (Yes) No

If the answer is "Yes" please proceed to **Step 2** by answering the following questions on explosives which would help us determine our responsibilities under the CEAA:

Step 2 Renfrew Power Generation Development of Clear Point Generating Station and Redevelopment of existing hydroelectric generating stations

1. Identify the project title, location and proponent name. Just off Mutual Ave. NE of Bridge St. (Hwy 60) Renfrew, Ontario
2. Description of the production of explosives.
   - Is a factory to make explosives required at or near the site? Please explain [a]. No
   - Will a temporary explosives factory be used for the project? Please explain [b]. No
   - What are the proposed locations of all factories? N/A
   - Will this project require a change of location of an existing factory? Please explain. No
3. Description of the storage of explosives
   - Is a magazine(s) to store explosives required at or near the site? Please describe (i.e., footprint, type of storage structure, site access, other ancillary works) [c]. No
   - What is the proposed location of the magazine(s)? N/A

[a] An Explosive Factory Licence is required for manufacturing facilities for explosives. A licensed facility can be a fixed site for the manufacture of blasting explosives, ammunition or fireworks, etc., or, in the case of bulk explosives, it can be the base of operations with the facilities necessary to clean, decontaminate and repair vehicles that mix and or deliver explosives directly down the borehole. If there is an existing licensed explosive factory that can serve as the base of operations for the project, then a new factory licence is not required.

Canada

APPENDIX B

Correspondence

Karen Fortin

From: Samson, Joanna (MNR) [joanna.samson@ontario.ca]

Sent: Tuesday, August 19, 2008 9:15 AM

To: Peter Boldt; Tami Sugarman

Cc: Moreau, Paul (MNR); Hyde, Al (MNR); Beal, Jim (MNR); Giesler, Tom (MNR); Paroschy, Nick (MNR); Punt, Kirby (MNR)

Subject: Clear Pointe Small Hydro Project (RPG)

Hi Peter,

Further to our telephone discussion earlier this afternoon, after careful examination of the project and initial drawings, MNR will not require RPG to go through the Direct Site Release process for the Clear Pointe Small Hydro Project, as:

1) Although the Crown owns the bed, there is no reasonable expectation that there will be Crown land required to complete this project as the banks are in private ownership. The only possibility of a crown disposition may be at the tailrace (and this could be easily avoided).
2) We are not allocating or sterilizing the opportunity for anyone else to pursue a water power development at this site. Due to the ownership of the banks, bed, existing power facility, and existing dams, no one else (except the applicant) can pursue this opportunity.

MNR still has legislated requirements for this project in terms the Lakes and Rivers Improvement Act as well as our commitments under MOE's Environmental Assessment process.

If you have any further questions at this time, please do not hesitate to contact me.
Thanks
Joanna

Joanna M. Samson
Water Resources Coordinator
Ministry of Natural Resources
Pembroke District
Ph: 613.732.5593
Fax: 613.732.2972
Email: joanna.samson@ontario.ca