Mark R. Knutson, P. Eng.
Senior Vice President
Chief Enterprise Engineer and Chief Nuclear Engineer

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OPG Proprietary

February 15, 2022

CD# NK054-CORR-00531-10632

MS. S. EATON
Director
Advanced Reactor Licensing Division

Canadian Nuclear Safety Commission
280 Slater Street
Ottawa, ON
K1P 5S9

Dear Ms. Eaton:

DNNP: Submission of Environmental Management and Protection Plan for Site Preparation and Request for Acceptance and Closure of Various DNNP Commitments under D-P-3

Reference: 1. CNSC Letter, B. Rzentkowski to M. Knutson, "Canadian Nuclear Safety Commission (CNSC) Response to Darlington New Nuclear Project (DNNP) – Notification of Document Changes to NK054-REP-01210-00078, "Darlington New Nuclear Project Commitments Report", January 31, 2022, CD# NK054-CORR-00531-10646.

The purpose of this letter is to submit the "Darlington New Nuclear Project (DNNP) - Environmental Management and Protection Plan for Site Preparation", NK054-PLAN-07730-00022 R000 (Enclosure 1) for CNSC review and acceptance. This submission is pursuant to Licence Condition 15.1 of the DNNP Power Reactor Site Preparation Licence, PRSL 18.00/2031.

The enclosed plan addresses commitments D-P-3.1 to D-P-3.11 as described in the Darlington New Nuclear Project (DNNP) Commitments Report, which was accepted by the CNSC per Reference 1. OPG has prepared the enclosed Environmental Management and Protection Plan to guide selected Engineering, Procurement and Construction (EPC) companies involved in licensed site preparation activities to develop and implement their Site Specific Environment procedures for their contract staff associated with the project.

OPG respectfully requests CNSC staff to review and accept the enclosed plan within 90 calendar days following receipt of this submission. Upon acceptance of the plan, OPG requests CNSC's concurrence to close respective commitments as listed in Attachment 1 "Request for Acceptance and Closure for Commitments under D-P-3".

OPG has copied Health Canada on this letter as they have expressed interest in the enclosed document.

Should you have any questions or require additional information, please contact Ms. Sevana Bedrossian, Manager, Regulatory Affairs - DNNP Licensing at (416) 716-3879 or by email at sevana.bedrossian@opg.com.

Sincerely,

Mark R. Knutson, P. Eng.
Senior Vice President,
Chief Enterprise Engineer and Chief Nuclear Engineer
Ontario Power Generation Inc

cc:

S. Belyea	- CNSC (Ottawa)
B. Rzentkowski	- CNSC (Ottawa)
M. Naraine	- CNSC (Ottawa)
B. Yang	- CNSC (Ottawa)
J. Kaushansky	- HC (Toronto)

Attachment:

1. Request for Acceptance and Closure for Commitments under D-P-3

Enclosure:

1. OPG Document, “Darlington New Nuclear Project (DNNP) - Environmental Management and Protection Plan for Site Preparation”, CD# NK054-PLAN-07730-00022-R000.

ATTACHMENT 1

Request for Acceptance and Closure for Commitments under D-P-3

Attachment 1 (Page 2 of 5) to OPG Letter, M. Knutson to S. Eaton, "DNNP: Submission of Environmental Management and Protection Plan for Site Preparation and Request for Acceptance and Closure of Various DNNP Commitments under D-P-3", CD# NK054-CORR-00531-10632

ATTACHMENT 1

Request for Acceptance and Closure for Commitments under D-P-3

The "DNNP Environmental Management and Protection Plan (EMPP) for Site Preparation" addresses various commitments under D-P-3 as outlined in the table below. Requests for acceptance and closure of those commitments are specified below.

Commitment	Requested in this letter		Section of EMPP addressing Commitment	Comments
	Acceptance	Closure		
D-P-3.1 Environmental Management and Protection Plan	Yes	Yes	Entire EMPP	
D-P-3.2 Nuisance Effects (Dust and Noise) Plan/Procedure	Yes	No	• Sections 8.4 and 8.5 • Nuisance Effects for residential properties along transportation routes affected by the DNNP is covered in "Darlington New Nuclear Project Traffic Management Plan", NK054-PLAN-08965.4-00001-R001", a deliverable for Commitment D-P-10.1. This Commitment is submitted in CD# NK054-CORR-00531-10634.	• OPG has presented and provided the Nuisance Effects Plan to Darlington and Pickering Community Advisory Council on October 19, 2021 and to the William Treaty First Nation (WTFN) on October 28, 2021 and has provided copy of this plan to WTFN subsequent to that meeting. • To date, OPG has not received any feedback. Should OPG receive any comments in the future, OPG will incorporate them, if applicable, to the plan. • OPG consulted with Health Canada (HC) on November 10, 2021. In response to HC comments on the absence of a detailed

Commitment	Requested in this letter		Section of EMPP addressing Commitment	Comments
	Acceptance	Closure		
				acoustic assessment, OPG is providing rationales to HC for why a detailed acoustic assessment is not required. If a detailed acoustic assessment is required, OPG will implement the assessment. • OPG will request closure of D-P-3.2 once Site Plan Approval has been granted by the Municipality of Clarington.
D-P-3.3 Spill Prevention and Response Plan/Procedure	Yes	No	Section 9	Once the contractor Site Specific Environment Plan for spills is developed, OPG will conduct the applicable consultation as required. OPG will request closure of D-P-3.3 once the above tasks are complete.
D-P-3.4 Storm Water Management Plan/Procedure	Yes	No	Section 11.1	OPG will request closure of D-P-3.4 once applicable permits are obtained.
D-P-3.5 Erosion and Sediment Control Plan / Procedure	Yes	No	Section 8.6	OPG will request closure of D-P-3.5 once applicable permits are obtained.
D-P-3.6	Yes	Yes	Section 10.2	

Commitment	Requested in this letter		Section of EMPP addressing Commitment	Comments
	Acceptance	Closure		
Hazardous Waste Management Plan/Procedure				
D-P-3.7 Terrestrial Environment Mitigation Measures and Plans	Yes	No	Section 12	OPG will request closure of D-P-3.7 once applicable permits are obtained.
D-P-3.8 Bank Swallow Mitigation Measures and Plans	No	No	Section 12.2	Plan to be completed prior to commencement of the licensed activities with potential adverse impact to the bank swallow habitat. Following this, OPG will request acceptance from CNSC. OPG will request closure of D-P-3.8 once Permit for development, interference with wetlands and alterations to shorelines and watercourses has been granted by the Central Lake Ontario Conservation Authority [CLOCA].

D-P-3.9 In-Land Aquatic Environment Mitigation Measures and Plans	Yes	No	Section 13	Site preparation activities are not expected to affect potential in-land aquatic habitat. OPG will request closure of D-P-3.9 once applicable permits are obtained.
D-P-3.10 Smog Alert Plan	Yes	Yes	Section 8.7	
D-P-3.11 Plan to address potential new discoveries of Physical and Cultural Heritage Resources	No	No	Section 14	OPG presented to Ontario Ministry of Heritage, Culture, Tourism and Sport Industries [MHCTSI] OPG's Plan to address potential new discoveries of Physical and Cultural Heritage Resources on January 11, 2022. MHCTSI staff was satisfied with OPG's plan. The final plan will be submitted to MHCTSI at the same time of this submission for their acceptance. OPG will request closure of D-P-3.11 once MHCTSI accepts the deliverable.

Enclosure 1 to OPG Letter, M. Knutson to S. Eaton, "DNNP: Submission of Environmental Management and Protection Plan for Site Preparation and Request for Acceptance and Closure of Various DNNP Commitments under D-P-3", CD# NK054-CORR-00531-10632

ENCLOSURE 1

OPG document, "Darlington New Nuclear Project (DNNP) - Environmental Management and Protection Plan for Site Preparation"

NK054-PLAN-07730-00022 R000

(42 pages including cover page)

OPG Proprietary	
Document Number: NK054-PLAN-07730-00022	Usage Classification: N/A
Sheet Number: N/A	Revision: R000

Title:

Darlington New Nuclear Project (DNNP) - Environmental Management and Protection Plan for Site Preparation

Darlington New Nuclear Project (DNNP) - Environmental Management and Protection Plan for Site Preparation

NK054-PLAN-07730-00022

2022-02-08

Order Number: N/A
Other Reference Number: N/A

OPG Proprietary

Prepared by: Sarah Malcolm, Assistant Technical Officer DNNP Environmental Assessment & Licensing — Feb 8, 2022

Approved by: Raphael McCalla, Director, Environment, Health and Safety — Feb 9, 2022

Reviewed by: Solly Solaiman, Section Manager, DNNP Environmental Assessment & Licensing — 2022 Feb 8th

Concurred by: Tho-Dien Le, Manager, Design Projects - DNNP — Feb 09,2022

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Revision Summary

Revision Number	Date	Comments
R000	2022-02-08	Initial issue.

1.0 INTRODUCTION

Ontario Power Generation (OPG) currently holds a Power Reactor Site Preparation Licence, PRSL 18.00/2031, for the Darlington New Nuclear Project (DNNP) from the Canadian Nuclear Safety Commission (CNSC). OPG intends to prepare the DNNP site for the future construction and operation of a new nuclear facility.

This DNNP Environmental Management and Protection Plan (EMPP) for site preparation was developed to establish requirements that the selected contractors for the execution of licenced site preparation activities are to adhere to when tailoring their environmental protection plans to site preparation activities. This plan also fulfills the DNNP site preparation regulatory commitment of D-P-3, Environmental Management and Protection Plan within the DNNP Commitments Report (R-1).

2.0 DESCRIPTION OF THE UNDERTAKING

2.1 Overview of the Darlington New Nuclear Project

The DNNP includes the site preparation, construction and operation of a new Small Modular Reactor (SMR) plant of up to 400 MWe of capacity at the Darlington Nuclear (DN) site, with potential future units being added to provide low carbon energy to the province of Ontario's integrated electricity system. The lands on which the Darlington New Nuclear Project is situated are within the shared traditional and treaty territory of the Chippewa and Mississauga Anishnawbeg, collectively known as the Williams Treaties First Nations. The CNSC regulates all stages of the life of each nuclear power plant, which include site preparation, construction, operation, decommissioning, and abandonment of site.

Each stage will require a licence for specific activities within that licensing stage. As such the DNNP will be implemented in phases in accordance with the licensing stages. OPG's current site preparation licence PRSL 18.00/2031 allows the following activities:

1. Construction of site access control measures;
2. Clearing and grubbing of vegetation;
3. Excavation and grading of the site to a finished elevation of approximately +78 metres above sea level (masl);
4. Installation of services and utilities (domestic water, fire water, sewage, electrical, communications, natural gas) to service the future nuclear facility;
5. Construction of administrative and support buildings inside the future protected area;
6. Construction of environmental monitoring and mitigation systems; and
7. Construction of flood protection and erosion control measures such as shoreline protection.

It should be noted that physical works directly related to construction of nuclear facility structures, systems and components are not allowed within the current site preparation licence and no bluff removal or lake infill can occur unless it is deemed required by the selected reactor technology and certainty that the project will proceed.

The site preparation phase of the DNNP is anticipated to take place over three years and consists of two phases:

- Phase 1: Early Works that is planned to start in 2022
- Phase 2: Main Site Preparation work that is planned to start in 2023

2.2 Environmental Assessment

The DNNP underwent a federal Environmental Assessment (EA) in accordance with the Canadian Environmental Assessment Act (CEAA 1992) and a Joint Review Panel (JRP) of the Canadian Environmental Assessment Agency and CNSC reviewed the EA. The DNNP EA focused on valued components (VCs) or aspects of the biophysical and human setting that are considered important by Indigenous communities, the public, the scientific community, and government agencies. The EA focused on 13 environmental components:

- Atmospheric Environment
- Aquatic Environment
- Surface Water
- Terrestrial Environment
- Geological and Hydrogeological Environment
- Radiation and Radioactivity Environment
- Ecological Risks/Natural Environment
- Land Use
- Traffic and transportation
- Socio-economic
- Physical and cultural heritage resources
- Indigenous Rights and/or Interests
- Human Health

The EA, as documented in the Environmental Impact Statement (EIS) (R-2), and JRP concluded that the project is not likely to cause significant adverse environmental effects, provided that the mitigation measures proposed and commitments made by OPG during the EA and the Panel's recommendations are implemented.

OPG's commitments and JRP's recommendations have been integrated and documented in the DNNP Commitments Report (R-1). For the site preparation phase, OPG will submit 18 commitments to the required regulatory agencies for review and acceptance or for information. Upon acceptance of commitment deliverables, CNSC staff will provide written consent to authorize the commencement of the licensed activities.

3.0 ENVIRONMENTAL MANAGEMENT AND PROTECTION PLAN

3.1 Purpose of the Environmental Management and Protection Plan

OPG is committed to conducting its operations and activities in a manner that protects the natural environment, as well as the environmental health and welfare of its employees, contractors and public; meets or exceeds requirements of all applicable environmental acts, regulations and permitting requirements; and keeps employees and the public informed about its environmental plans through OPG internal and external communication programs.

This EMPP is an OPG overarching plan that establishes requirements for selected site preparation contractors to adhere to. The contractors will tailor their site specific environmental protection plans/procedures, hereinafter referred to as "SSEP(s)", to the licenced site preparation activities. These plans are to be executed to measure and achieve compliance with the environmental protection and mitigation requirements of a project. Contractor plans are living documents and are reviewed by OPG on frequent basis. They are available to the CNSC staff upon request.

The EMPP describes applicable environmental protection measures associated with site preparation activities at the DNNP site. It is intended to be a reference document for OPG and contractor project personnel for the planning and execution of project-specific activities, as well as a guidance document for contingency planning. The specific purposes of the EMPP are to:

1. Provide a reference to applicable legislative requirements and guidelines.
2. Provide OPG's environmental policy, Environmental Management System (EMS) and philosophy to be followed on the project.
3. Document environmental concerns and appropriate protection measures.
4. Define roles and responsibilities.
5. Define requirements for contractor development of task specific protection plans.
6. Define contingency and emergency plans for dealing with unplanned events.
7. Define records that shall be kept to meet regulatory environmental requirements.

This EMPP also describes the procedures, responsibilities, and control actions to be taken by OPG personnel and OPG's selected contractors to achieve industrial environment safety and environmental responsibilities, and to comply with all applicable federal, provincial and municipal legislations, regulations and conditions of approval while completing the site preparation activities described.

When detailed engineering aspects are finalized, OPG's selected contractors shall develop SSEP(s). These document(s) will reflect the most current standards for the protection of the environment, detail the conditions of all permits and approvals and will present strategies for prevention and/or minimization of negative impact during the execution of site preparation activities. SSEPs will be in place prior to any site preparation activities being undertaken.

The EMPP will be available and provided to all relevant staff, contractors and subcontractors to ensure that they are aware of their responsibilities and of the procedures to be used to manage the work. Contractors' SSEPs are to be prepared in alignment with this EMPP.

The following sections describe OPG policies and procedures that will apply as well as key roles and responsibilities.

OPG is committed to continual improvement, and as such, OPG will review for acceptance all contractor specific environmental protection plans or procedures and ensure they will be reviewed on a regular basis and updated accordingly.

4.0 ENVIRONMENTAL POLICY

Ontario Power Generation's (OPG) Environmental Policy (R-3) states that OPG shall meet compliance obligations, including any environmental commitments that it makes, with the objective of exceeding these compliance obligations where it makes business sense.

The current version of the OPG Environmental Policy is posted at OPG workplaces; available on the OPG intranet and www.OPG.com.

All DNNP consultants, contractors and their subcontractors are expected to conform to OPG's Environmental Policy.

5.0 APPLICABLE LEGISLATION

The applicable municipal, provincial and federal legislation includes, but is not limited to, the following (or superseding regulations):

5.1 Municipal Legislation

Regional Municipality of Durham

- By-Law No 55-2013 (Sewer Use)

5.2 Provincial Legislation

Planning Act, R. S. O. 1990 – Municipality of Clarington

- By-law 2007-071 (Noise)
- By-law 2019-04 (Clean and Clear)
- By-law 84-63 (Zoning)
- By-law 2008-114 (Site Alteration)

Environmental Protection Act, R.S.O. 1990, c. E.19

- O. Reg. 419/05 Air Pollution - Local Air Quality
- O. Reg. 675/98 Classification and Exemption of Spills and Reporting of Discharges

- O. Reg. 222/07 Environmental Penalties Regulation
- O. Reg. 342, R.R.O. 1990 Designation of Waste
- O. Reg. 347 R.R.O. 1990 General Waste Management
- O. Reg. 102/94 Waste Audits and Waste Reduction Work Plans
- O. Reg. 153/04 Record of Site Condition, 2014
- O. Reg. 255/11 Applications for Environmental Compliance Approvals
- O. Reg. 406/19 On-site and Excess Soil Management

Ontario Water Resources Act. R.S.O., c.040

- O. Reg. 525/98 Approval Exemptions
- O. Reg. 387/04 Water Taking Regulation

Clean Water Act, S.D. 2006, Chapter 22

Toxics Reduction Act, 2009 S.D. 2009, c.19

- O. Reg. 455/09 General

Endangered Species Act, 2007, 5.0. 2007,c.6

- O. Reg. 176/13: General
- O. Reg. 230/08: Species at Risk in Ontario

Public Lands Act, R. S. O. 1990, c. P.43

Conservation Authorities Act, R.S.O. 1990, c. 27

- O. Reg. 42/06 Central Lake Ontario Conservation Authority: Regulation of Development, Interference With Wetlands and Alterations to Shorelines and Watercourses

- Ontario Heritage Act. R.S.O 1990, c. O.18

5.3 Federal Legislation

Species at Risk Act (S.C. 2002, c.29)

Migratory Birds Convention Act (S.C. 1994, c.22)

Canadian Environmental Protection Act, 1999 (S.C. 1999, c.33)

- Ozone Depleting Substances Regulations, 1998 (SOR/99-7)

Nuclear Safety and Control Act (S.C. 1997, c. 9)

- General Nuclear Safety and Control Regulations (SOR/2000-202)
- Radiation Protection Regulations (SOR/2000-203)

Fisheries Act (R.S.C., 1985, c. F-14)

Transportation of Dangerous Goods Act, 1992 (S. C. 1992, c. 34) and Regulations

6.0 ENVIRONMENTAL MANAGEMENT SYSTEM

The DNNP Project will be executed in a manner which conforms to the requirements of the Environmental Management System (EMS), documented in the OPG Environment, Health and Safety Managed Systems program document (R-4).

OPG's Environmental Management System (EMS) is compliant with ISO 14001, Standard for Environmental Management. This Standard requires that any person performing work or services on an OPG site, where such work or service has the potential to cause a significant environmental impact, should be aware of the requirements and importance of the EMS and be competent to perform the work assigned. Any contractor who performs an operation or activity that has the potential for significant environmental impacts shall implement measures and controls to minimize the environmental risk (e.g., documented procedure controls). The contractor is accountable for compliance with environmental requirements in accordance with OPG's EMS regardless of who performs the work (e.g., subcontractors).

7.0 ROLES AND RESPONSIBILITIES

Environmental management is the responsibility of OPG and OPG's contractors. All OPG, contractor, and subcontractor employees working on this project are required to follow the applicable SSEP that meets the intent and requirements of this EMPP and to maintain vigilance at all times to ensure that the work is conducted in a safe and environmentally responsible manner. This includes:

- Monitoring the mitigation that has been established to protect the environment and reporting of all deficiencies to their supervisor, and in turn to OPG Contract Owner immediately.
- Making conservative decisions regarding construction activities as they relate to environmental protection.
- Performing work in an environmentally responsible manner and identifying, communicating and, where appropriate, correcting workplace hazards in order to protect the environment from harm.

The responsibilities of OPG and OPG's contractors are provided below.

7.1 OPG Roles and Responsibilities

The OPG Contract Owner shall ensure staff are designated to oversee contractor environmental performance on the project and to review and accept, as required, contractor environmental related documents for the project, specifically:

- Develop and maintain this EMPP;
- Notify contractor(s) of any intent changes to this EMPP and agree on associated required changes to the contractor's SSEP, including timeline to implement;
- Lead communication with regulatory agencies, stakeholders and identified Indigenous communities;
- Review and accept contractor's SSEPs and confirm they meet requirements;
- Monitor contractor's SSEP, activities with respect to compliance with SSEP and the EMPP, as deemed required;
- Preparation of reports as required by environmental permits or approvals;
- Report environmental incidents in accordance with N-PROC-RA-0020;
- Monitor noise levels and air monitoring to support dust and noise management (see Section 8.4 and 8.5);
- Communication with regulatory agencies, the public and other stakeholders;
- Obtain OPG authorization for environmental-related permits as required;
- Support contractors in obtaining environmental-related permits where required; and
- Provide a support role to address any site-specific questions or information for the process surrounding environmental permits (which will be done by contractors/subcontractors).

7.2 Contractor Roles and Responsibilities

The contractor is responsible for construction management and environmental aspects associated with the contracted work. It is up to the contractor to assign staff within their organizational structure to fulfill the following responsibilities:

- Allocating resources and assigning responsibilities for the implementation, operation and ongoing improvement of the Project's environmental management processes including all requirements of the EMPP, permits, and approvals;
- Assign qualified and competent environmental professionals to develop SSEPs that meet the intent of this EMPP and reflect respective permit/approval conditions;
- Obtain OPG acceptance on SSEPs and review and update SSEP as required, and implement SSEP;
- Maintain accessible records of chemicals brought and used on site (i.e. Material Safety Data Sheets (MSDS)) such that the locations are known to all personnel;

- Ensure that all construction activities are conducted in compliance with the applicable SSEP;
- Ensure that their workers and subcontractors are appropriately trained and supervised. Refer to DNNP Training Plan (R-5) for details;
- Inform OPG should the conditions differ materially from those anticipated under the applicable SSEP;
- Undertake corrective and preventative measures in response to any non-conformance with SSEPs;
- Ensure that all environmental permits necessary to undertake the construction activities have been obtained prior to the start of those activities. Apply for and obtain environmental-related permits with input from OPG where required. Assist OPG in permit submissions as required;
- Immediately report every Environmental Event as described in Section 15, Reporting Environmental Events;
- Investigate and document the cause of every Environmental Event, implement preventive and corrective actions, and document lessons learned; and
- Intervene and correct at-risk behaviour and correct inappropriate environmental performance.

The following activities are to be completed by either OPG and/or Contractors depending on the Contract Scope of Work:

- Monitoring any corrective and preventive environmental actions implemented on site.
- Monitoring and reporting the effectiveness of mitigation measures.
- Auditing environment field work, sampling and reporting procedures, and results as appropriate and providing direction and additional training if required.
- Supervising and coordinating the collection of data and reporting of environment related information for permitting, approvals and other reporting requirements.

8.0 SITE SPECIFIC ENVIRONMENTAL PLAN(S)/PROCEDURE(S)

The SSEPs are environmental plans/procedures that the contractor are to develop and follow during the execution of licensed site preparation activities based on this EMPP. OPG typically requires that the SSEP be reviewed and accepted by the Contract Owner or Delegate before contractor mobilization to site is permitted.

The SSEPs:

- reflect the most current standards for the protection of the environment and detail the conditions of all permits and approvals;

- describe strategies for preventing and/or minimizing damage during the execution of site preparation activities; and

- comply with OPG's EMS.

The environmental protection procedures/practices outlined in the following subsections are to be followed together with the details in the conditions of all permits and approvals, when they become available. In the event of a conflict between these, the order of priority is to be: 1) permit/approval conditions; followed by 2) conditions outlined in the EMPP. If required, contractor is to update SSEP and other procedures/practices to align with permit/approval conditions.

As the site preparation activities have yet to receive approvals, permits or complete detailed engineering, final engineering and approvals or permits may affect details about how the proposed management plans function at the site preparation execution level. OPG's selected contractors will develop, where required, specific environmental protection plans or procedures (SSEPs) in accordance with requirements outlined in this EMPP and ensure a change management process is in place for incorporating regulatory changes and permits/approvals.

8.1 Site Area Environmental Management

For the purposes of environmental controls, use the following site terminology:

- Excavation Area(s): Areas of exposed earth material consisting of the full extent of the excavation and side walls, including areas covered by daily cover, prior to restoration. Staging of the activities should endeavour to minimize the size of the Excavation Area at any given time. See Section 11 regarding storm water management and dewatering management.
- Staging Area(s): All areas determined by the final site plan for stockpiles, staging areas, and internal access roads, exclusive of pre-existing on-site and off-site roads will be maintained.
- Undisturbed Area(s): Areas of the site not disturbed by site preparation activities, including vegetated areas and impervious surfaces such as vegetated boulevards, will be considered undisturbed. The Undisturbed Area will be protected from site preparation activities by using good management practices including but not limited to:
    - Fencing and signage where deemed necessary;
    - Restriction of site preparation footprint; and
    - Erosion and sediment control measures.

8.2 Indigenous and Traditional Knowledge

OPG commits to working further with Indigenous communities and stakeholders to incorporate Indigenous and Traditional knowledge in the project, where applicable, in order to further understand the potential impacts of the project and strengthen our assessment and decision-making.

OPG endeavours to apply Indigenous and Traditional knowledge into our own framework for DNNP Environmental Monitoring and EA follow up plan and for this EMPP. OPG welcomes all information that can be used to provide insight and continue discussion with Indigenous communities to better integrate Indigenous and Traditional knowledge in the project.

8.3 Best Management Practices

Potential adverse impacts can be avoided through good planning and the application of best management practices (BMPs) of similar projects by the contractor before, during and after site preparation activities occur.

Impact avoidance is the preferred means of protecting the environment; adverse environmental effects can be minimized by incorporating current BMPs in similar construction sites into site preparation activities. BMPs help guide those conducting activities as to what practices are best for the environment.

8.4 Dust Management

Dust management may be needed within the DNNP site, and dust control practices are to be included in SSEPs as required. Measurable increases in contaminant (such as particulate matter) concentrations in the atmosphere are predicted to occur at on and off-site receptor locations from the project.

The potential for dust impact to the residential properties is low as roads in this area are paved, and soil haulage to off-site disposal location is not envisaged for the project. As such dust management for residential properties is not required. If the need for soil haulage outside the DNNP site arises, dust management provisions for the affected area will be developed and implemented.

8.4.1 Dust Generation

Dust generation related to construction activities may result in human health effects, as well as negative impacts on freshwater ecosystems and vegetation. During dry conditions dust can be generated through the movement of soils, soil piles, truck traffic, and general construction and soil excavation works.

8.4.2 Mitigation Measures

The contractor is responsible for ensuring adequate dust control and monitoring in accordance with their SSEPs, and taking the appropriate corrective actions as required. Contractors should review the requirements of having a dust control monitoring program in place during dry conditions as appropriate. It should be noted that typically the onsite wind blows from the northwest quadrant, approximately 28 per cent of the time.

As appropriate, the following mitigation will be used as guiding principles to control dust during site preparation:

- Dust management is conducted in a manner that reflects best management practices such as those identified in the MOECC Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources (R-6).
- Material stockpiles should be sheltered from the wind or otherwise maintained (e.g. sprayed with water) to prevent generation of air-borne particulates and placed in locations that consider the prevailing wind directions and locations of sensitive receptors; As appropriate, silt fences are installed along the Site boundary to reduce the movement of dust.
- Dust control are provided for unsealed roads, construction activities and open soil areas using water or other suitable method. Particular care will be taken to maintain dust suppression near sensitive areas; as necessary, dust suppression measures such as watering the roads and soil piles are implemented except when temperatures are below 4 degrees Celsius, as this may pose an icing risk.
- Records of dust suppression activities are kept and provided to the OPG Contract Owner as requested.
- A Water Use License under the *Water Resources Act* will be obtained if a source of water is required for dust suppression.
- Occupational Health and Safety dust control measures are in place to protect worker health.
- Cover vehicles hauling soil, aggregates or fine material to minimize the generation of dust.
- Plan construction activities to limit areas of exposed soil at any given time.
- Cover exposed fill / soil piles that may be a source of dust with tarps, soil binders or other appropriate means, where practical.
- Disturbed surfaces of completed earthworks and/or unused bare areas are stabilized with vegetation, stones, geotextile, mulch or other erosion resistant cover as appropriate.
- As trucks enter and leave the site, mud and dirt will be tracked onto OPG roadways. Mud traps, Gabion bridges and/or washing truck wheels should be considered as mitigation measures to reduce tracking on paved roads; paved roads will be cleaned as appropriate. All effort should be made to minimize the amount of mud that is tracked onto paved OPG roadways.
- A speed limit of less than 25 km/hr on areas that may generate significant dust should be posted.
- Limiting site traffic to established haul routes.
- Water trucks may be required to minimize the amount of dust. Wetting may be required on soil pile, land and road surfaces during construction. Minimal amounts of water will be applied such that surface runoff of sediment is minimized.

In addition, these controls should include as applicable:

- Monitor the effectiveness of dust management measures per the contractors SSEP and take appropriate corrective actions.
- Dust generated from the excavation and load-out operations will be monitored visually for the duration of the project.
- Consider weather conditions when transferring high dust generating material.
- Overuse of de-icing materials should be avoided.
- Application of dust suppressants should have OPG-approval prior to use.
- Consider use of different aggregate grades for roads construction, selection of road surface types conducive to each roadway function that promote lower dust emissions (i.e. paved roads, low silt gravel, washed stone).
- Employ slope stabilization (e.g. hydro seeding).
- Consider staged grading to allow for natural stability from cover materials and vegetation.
- Minimize the number of times soils are handled and materials drop distances (i.e. from loader to truck).
- Mitigate traffic congestion and distances travelled between loading and offloading sites.

8.5 Noise Management

The noise environment in the vicinity of the DN site is influenced by several noise sources including the Darlington Nuclear Generating Station (DNGS), local road and Highway 401 traffic, CN rail line, St. Mary's Cement plant, along with sounds of nature associated with Lake Ontario shoreline wind and wave noise. During site preparation, localized increases in noise levels from soil and rock excavation activities and vehicle operation are expected. Similar to dust management, noise management may be needed within the DNNP site.

The potential for noise impact to the residential properties is low. Truck or vehicular volumes associated with the project would not be expected to result in noise impacts that require mitigation. If truck or vehicular volumes change, noise management for the affected area would be developed and implemented.

As OPG had completed a detailed acoustic assessment as part of the EA and updated baseline noise data in 2018-2019, OPG's opinion is that another detailed acoustic assessment prior to DNNP site preparation in 2022 would offer little benefit and hence it is not required. At the consultation session with Health Canada on November 10th 2021, OPG sought Health Canada's concurrence with the above conclusion. If a detailed acoustic assessment is required, OPG will implement the assessment.

8.5.1 Noise Generation

Project activities have the potential to generate noise from the use of heavy equipment and the handling of various construction materials. Noise generation has the potential to disturb nearby

residents, as well as cause negative effects on wildlife in the area. The contractor is to conduct spot check monitoring during high noise-generating activities.

8.5.2 Mitigation Measures

A Contractor will implement a noise management plan that includes the following activities as applicable:

- Contractor shall adhere to all permits and approvals, and to the standards set out in the Occupational Health and Safety Act (R.S.O. 1990, c1) and the Ontario Model Municipal Noise Control By-law.
- Review the specific noise standards noted in Ontario Ministry of Environment, Conservation and Parks (MECP) NPC-300, NPC-115, and NPC-119.
- Review the Clarington By-law with respect to compliance requirements during construction.
- Equipment with potential to produce loud noises will be fitted with standard and well-maintained noise suppression devices.
- All vehicles and generators will have exhaust systems and noise abatement equipment regularly inspected and operating properly.
- All materials handling will be carried out in such a way as to avoid unnecessary generation of loud noise.
- The use of best industry practices will minimize noise generation during site preparation activities, and will lessen the effect on any wildlife.
- Equipment used during the construction process are maintained in good working order.
- Limiting hours of operation to working day hours for site preparation activities where possible.
- Construction activities generating noise that may affect nearby residents or occurring outside of municipal noise curfew hours be discussed in advance with OPG for notification of potentially affected nearby residents.
- Ensure vehicles and other fuel combustion equipment is properly maintained; Minimize idling time for vehicles.
- Limiting site traffic to established haul routes.
- Establish on-site vehicle restrictions, including restrictions on tail gate banging during offloading.
- Construction equipment should be equipped with appropriate noise control (e.g., dampened reverse alarms).
- Monitoring noise level during site preparation to detect abnormal levels and determine whether further action needs to be taken.

8.6 Erosion and Sediment Management

8.6.1 Potential Impact

The DNNP site preparation activities near shorelines have the potential to cause surface soil erosion and result in the deposition of sediment into the aquatic environment, leading to negative effects on fish and fish habitats, surface water quality and land use.

Erosion and sediment control measures are to be in place prior to the initiation of site preparation activities and throughout their duration. The controls are to be sufficient to prevent sediment from moving off-site and into adjacent ditches, streams, watercourses, or storm sewers.

8.6.2 Mitigating Measures and Monitoring

A Contractor will implement the following mitigating measures as applicable to control erosion and sediment during site preparation:

- Soil stability will be assessed prior to clearing and grubbing to determine requirements for erosion control.
- Vegetation clearing and other ground disturbance activities will be limited to those areas where it is necessary for project development (see Section 8.1).
- Adequate materials, including fencing, silt discharge bags, hay bales and filter fabric will be available to maintain silt control measures for the course of the project.
- Sediment control structures will consist of check dams, silt fencing or turbidity curtains and the routing of site runoff to filter points during dewatering or prior to being discharged.
- Employ dust and sediment control measures to minimize suspended sediment concentrations.
- Silt fencing will be inspected on a regular basis and regularly maintained.
- Silt screens will be utilized where deemed required.
- If required, temporary diversion dykes will be installed to control surface run-off.
- Assess erosion and sediment control measures before and after rain and significant snowmelt events.

In addition the Contractor should consider the following as applicable:

- Using a multi-barrier approach.
- Limit duration of soil exposure and/or phase construction.
- Limit size of disturbed area.
- Control overland sheet flow and avoid concentrating flow.

- Store and stockpile soil away from watercourses, drainage structures, and the top of slopes.

Additional measures may also be implemented in consultation with OPG if site conditions, work schedule or weather dictates that such additional protocols are advisable.

As the project design details are finalized, storm water management practices will be tailored for specific application. It is anticipated that the site preparation activities would not impact Coot's Pond. If the activities pose any risk of impacting Coot's Pond, appropriate mitigation measures shall be implemented to ensure that water quantity and quality are maintained.

Monitoring:

- A Contractor is responsible for monitoring the effectiveness of surface water runoff management measures and will take appropriate corrective actions.
- Catch basins are to be periodically inspected and cleaned for any sediment build up and all siltation control measures are maintained as required and as site conditions dictate.
- Erosion control structures will require maintenance when silt levels accumulate to one half the storage capacity of the structure. In the case of silt fencing, this is when silt has accumulated to approximately half the fence height or when the silt retention capacity has been reduced to approximately 50% due to sagging or staple loss. At this point the silt will be removed and properly disposed to avoid materials gaining access to the watercourse.
- Weather forecasts will be monitored for significant rain events. Inspections will be conducted of all sediment and erosion control measures on site prior to and after the rain event to ensure their proper installation and take corrective actions as required.
- Wastewater resulting from the excavation process will be managed based on the requirements outlined in Section 11.3 Dewatering Management.
- Monitoring of turbidity in surface water is necessary to identify compliance with regulatory or permit requirements. Refer to Section 11.1 Storm Water Management Plan for more details.

8.7 Smog Alert Action Plan

Ontario air quality has improved over the last 10+ years due to the shut-down of coal-fired power plants, with the last coal-fired power plant in Ontario being closed in April 2014. While a number of major construction projects have taken place over last decade in the York-Durham Region such as the Durham York Energy Centre and Highway 407 improvements, the Region has not had any smog and air health advisories (SAHA) since 2015. From 2008 to 2015, Oshawa had no recorded Air Quality Index values categorized as "Very Poor" and only 6 occurrences of "Poor", with the last occurrence recorded in 2013. As a result, the development and implementation of a smog alert action plan is not necessary for DNNP site preparation activities.

OPG consulted the above assessment with the CNSC, Environment and Climate Change Canada (ECCC), Health Canada, and the Regional Municipality of Durham on November 10th 2021, and all agencies agreed that such action plan is not necessary for DNNP at this time. The implementation of an air quality monitoring plan and adaptive management program under the Environmental Monitoring and Environmental Assessment Follow-Up Monitoring Plan should be sufficient.

OPG continues to examine current regional air quality trends at each licensing stage of the DNNP, and in the unlikely event that smog becomes a concern in the future, OPG will consult with appropriate stakeholders if a smog alert action plan is needed.

9.0 SPILL PREVENTION AND RESPONSE

9.1 Spill Management

Spills management includes the management of all unplanned releases to the environment. The contractor is to have a spill management plan that shows how the contractor will endeavour at all times to prevent spills (e.g., release of fuel, oil or chemicals), and in the event of a spill, provide the best response within the shortest possible time. This can be part of the SSEP. As appropriate, the contractor will implement spill prevention and response measures to prevent and manage spills during site preparation activities. Additionally, the contractor shall address the two potential conventional (non-radiological) malfunctions and accidents due to spill scenarios identified in Table 7.2-5 of the EIS (R-2) that are applicable to the site preparation as outlined below:

1. Spill of oil to land during transformer fire or release of fuel oil from a tanker trunk or a storage tank during a transportation accident or a leak of fuel from a vehicle: If transformer and fuel oil storage are planned for site preparation, the contractor will develop a spill management plan in consultation with appropriate regulatory agencies, including ECCC.

2. Spill of oil or fuel into Lake Ontario due to boat or barge accident resulting in release of oil or fuel into the lake: this scenario is not applicable, as there will be no activity in Lake Ontario and the scenario for a spill of fuel to the lake involving a potential boating accident would not exist.

Spill management requirements:

- Spill management shall conform to the Environmental Protection Act (R-7), Section 91(1).
- Spill management shall conform to the Guideline for Implementing Spill Prevention and Contingency Plans Regulatory Requirements (R-8).
- Contractors should refer to OPG documents as applicable:

Document number	Document Name	Description
N-INS-07292-00001	Spill Prevention And Contingency Plan	Provides site information and governance on spill prevention, assessment, and response to spills.
N-FORM-11493	Spill Report	Form to be filled out following a spill.
OPG-STD-0152	Spill Management	This standard establishes the framework to manage spills at all OPG sites.

9.1.1 Spill Prevention

Measures for Spill Prevention should include:

- Inspections of equipment and vehicles for maintenance issues or leaks prior to deployment to OPG Site.
- Position equipment with spill potential on concrete or asphalt where possible.
- Maintenance and cleaning activities located in an area that would have minimal impact on any environmentally sensitive area should a spill or leakage occur.
- Cover any nearby yard/storm drains where there is equipment or activities with spill potential.
- Inspect all hydraulic hoses for wear and tear and loose connections prior to use.
- Ensure that spill response materials are readily available at each location.
- Clean any oil residue on the equipment prior to mobilizing to a new location.
- Install catch containment around equipment to contain potential spills to the environment.
- Install drip trays or other containment under portable lighting units, portable gas-powered stationary units and other construction equipment/connection points that have the potential for spills (i.e., vacuum truck, boom truck).
- Secondary spill containment inspection to ensure that rainfall or snow melting does not cause the overflow of potential contamination to the ground.
- Reinforce hose connection points.

9.1.1.1 Fuelling

Contractors are to work together with OPG Contract Owner to formulate a fuelling plan. Consider also “OPG Safety & Environmental Instructions for Contractors” Instruction 36 “Off-Road Vehicles”. The plan should include the following: fuelling and equipment maintenance are done offsite where possible. If required on site, refueling and general use mitigation practices to be followed include but are not limited to:

- Any on-site refueling activities shall be located in an area that would have minimal impact on any environmentally sensitive areas should a spill or leakage occur.

- Certified spill trays are to be placed below fuel tank opening during fueling to capture any drips and/or over flow.

- Fueling machinery and equipment will not be filled to the maximum to reduce potential for over flow, spillage or expansion of product under high temperature conditions.

9.1.1.2 General Inspection and Hazard Assessment

Regular inspections of equipment and work areas can reduce the likelihood of spills. Practices should include the following as applicable:

- Regular maintenance and visual inspection to be in place to detect any structural problems with temporary work equipment and fuel storage tanks. Secondary containment to be utilized wherever possible. Fuel storage tanks should be stored offsite if possible to minimize need for fuelling on site.
- The job site should be inspected on a minimum weekly basis by the contractor.
- Inspection reports, recommendations and remedial actions taken will be recorded and copies sent to the OPG Contract Owner as requested.
- All personnel will be required to conduct pre-use inspection of their work area, tools and equipment.
- All equipment, machinery and power tools to be operated, used and maintained in accordance with manufacturer's instructions.
- Leaking equipment is to be taken out of service.
- Ensure that noticeable leaks from equipment are immediately contained and reported per Reporting Environmental Events, Section 15.

9.1.2 Spill Response

Spill response measures will be taken to minimize or eliminate contaminants reaching the natural environment, and remediation measures will be implemented as required.

- Each contractor and subcontractor is responsible for having spill kits available for all machinery and mobile equipment; and a response plan for any spill that may originate from contractor equipment (mobile or stationary).
- If spills or excessive leaks are discovered on equipment or machinery during a pre-use inspection, the leak shall be contained; cleaned-up; reported and the equipment repaired. Should the equipment be removed from site, the spill or leak should first be stopped. This also applies to leaks discovered during operation.
- All spills of any nature are reported to the contractor's supervisor or Manager immediately.

- Once a spill is under control and the immediate danger is removed, environmental management and monitoring are initiated to characterize the extent of the impacts and the clean-up.
- Post–spill environmental surveys will be organised by the responsible contractor or subcontractor to assess the residual environmental effect, and the rate and success of recovery of the affected habitats. A remediation plan will be developed based on the requirements of the spill.
- If the spill recovery is beyond the capabilities of the contractor, a qualified environmental remediation contractor shall be retained by the contractor.

9.1.2.1 Spill Response Equipment

- Contractor to conduct an assessment of spill risk; review the material in their location; and request further materials if required for safe operation and spills response. Documentation to be maintained and reported to OPG Contract Owner as requested.
- DNNP contractors will ensure spill kits, fire extinguishers, first aid kits, eye wash stations will be available on-site and inspected on a monthly basis. The inspections are to be documented and will be made available to OPG, as required. Contractors to inform employees of the location and procedures for use of this equipment.
- All spills/leaks or discharges shall be cleaned up recognizing worker safety first. Proper protective and cleanup equipment should be readily available and used. The spill kits should be marked appropriately in a visible and easily accessible location.
- Time is of the essence when cleaning up a spill. Waste material from a spill/leak or discharge are placed in the appropriate containers (e.g. sealable drums) and removed to a temporary storage area and stored within spill containment. Proper disposal of materials from clean-up efforts will be conducted.

9.1.3 Spill Reporting

Follow Section 15 – Reporting Environmental Events.

10.0 SOIL AND HAZARDOUS WASTE MANAGEMENT

During site preparation, the DNNP may generate surplus soil and conventional waste that will require management and proper placement or disposal.

10.1 Soil Management

OPG conducted a comprehensive soils characterization program (R-9) and Soil Management Plan (R-10) for DNNP site in 2021. The documents could support the preparation of the contractor's SSEP. If required, based on final excavation design/locations further delineation of soil impacts is recommended. As part of the SSEP soil control/management should be developed to guide soil management in the course of planned construction activities on DNNP lands.

It is anticipated that DNNP soil disposal will be appropriately managed on-site. While managing soil on-site, follow these practices:

- Soil movement shall comply with provincial regulations, refer to O. Reg. 406/19 On-site and Excess Soil Management.
- Surplus soil resulting from activities such as geotechnical evaluations and building construction will be handled and disposed of in accordance with regulatory requirements.
- Contractors to follow applicable procedures to handle, sample and dispose of the excavated contaminated soil.

10.2 Conventional and Hazardous Waste Management

- Conventional waste is defined as all non-radiological waste, excluding subject waste. Conventional waste management activities are to be compliant with applicable provincial requirements, including Reg. 102/94 under the Ontario Environmental Protection Act - Waste Audits and Waste Reduction Work Plans.
- Subject waste is defined under O. Reg. 372/15 (amendment to Reg. 347) as hazardous waste and liquid industrial waste. All subject wastes shall be identified in accordance with the regulation.
- Once specific details regarding chemicals to be stored and used on the site have been determined by the selected vendor, they will provide any hazardous substance releases and the required management practices for those substances to OPG. Per Environmental Emergency Regulations under the Canadian Environmental Protection Act, OPG shall report substances meeting certain quantity thresholds.
- Contractors should refer to OPG documents as applicable:

Document number	Document Name	Description
OPG-PROC-0126	Hazardous Materials Management	Establishes the approval process and the label and training requirements for the protection of OPG workers and contract workers under OPG supervision from the hazards associated with work and work in close proximity to hazardous products/materials.
OPG-STD-0156	Management of Waste and Other Environmentally Regulated Materials	Define OPG's operating criteria and expected behaviours to manage wastes and other environmentally regulated materials as defined in applicable legislation.

D-INS-79000-10000	Completion Of Waste Manifests At Darlington Nuclear	Direction to correctly complete and process Waste Manifests.
D-INS-79000-10001	Waste Disposal Guidelines For Oil And Chemical Wastes At Darlington	Direction on disposal of small waste items and defines the expectations of Waste Generators for the proper planning and handling of oil and chemical wastes for disposal.
D-INS-79000-10002	Waste Disposal Guidelines For Solid Waste And Recycling At Darlington	Defines the expectations of Waste Generators for the proper planning and handling of Solid Waste and Recycling at Darlington.

- Waste generators identify the appropriate disposal pathway before generating waste. Construction materials and construction waste, including chemical wastes, are to be properly managed and disposed of in accordance with regulations and best practices. Contractors hired for projects have (or obtain) the capability to dispose of all their hazardous wastes as required by O. Reg. 347 General – Waste Management.
- Hazardous chemicals will be managed using the Workplace Hazardous Materials Information System (WHMIS) principles.
- Provisions for storing hazardous wastes in separate, secure areas to prevent spills and ensure segregation.
- Hazardous waste handling procedures and protocols for safe transport and storage of hazardous waste.
- The management of hazardous wastes (storage, processing, disposal, transport) will comply with federal and provincial requirements and Industry Practices.
- Waste will be collected, stored, and shipped by a licensed hazardous waste disposal company, to a licensed facility.
- The environmental effects of such chemicals and hazardous waste will be mitigated by the incorporation of Good Industry Management Practices into project implementation.
- Procedural controls will be implemented to ensure the safe transport, storage and handling of hazardous materials.

In addition, the Contractor implements a Hazardous Waste Control plan that includes the following activities as applicable:

- Contractors and subcontractors submit lists of products that are being brought to site to the OPG Contract Owner so that it can be determined if the products are approved for use at the OPG site. All products being brought to site are to be approved by OPG in

this manner. All materials brought on site will be stored in secure containers and will be properly labeled as to content with an appropriate WHMIS supplier or workplace label.

- Upon completion of the project, a summary of material disposed (i.e., total weights and their disposal destination) is to be prepared and provided to the OPG Contract Owner.
- Waste management plans are to consider all reasonable efforts to reduce, reuse, or recycle non-hazardous and non-radioactive waste.
- Waste will be collected regularly by licensed contractors and transferred to appropriately licensed off-site disposal facilities.
- Disposal of any trees, bushes, stumps and windfall that cannot be safely managed on site will be disposed / removed from site to a licensed landfill or placed in a designated soil spoil area in accordance with regulatory requirements. Every effort will be made to dispose of these items on-site.
- With the exception of washroom trailers which are to be pumped out and brought offsite, any domestic sewage will be directed to the municipal wastewater treatment plant.

As no usage of explosives are anticipated for site preparation, the explosive related aspect of hazardous waste management is not included in this document. Should the site preparation activities require explosives be used, appropriate permits shall be obtained and mitigation measures shall be implemented (e.g. delivery on site as required).

10.3 Documentation

Upon completion of the site preparation activities, a summary of material disposed (i.e., total weights and disposal destinations) is to be prepared and provided to the OPG Contract Owner.

11.0 WATER MANAGEMENT PLAN

The objective of the Water Management Plan is to define the procedures that will be used to minimize impacts to surface and groundwater resources.

During site preparation, the Contractor will ensure that procedures will be adhered to and will monitor and report the effectiveness of the mitigation.

Potential consequences of climate change are likely to be evidenced in changing temperatures and water levels.

11.1 Storm Water Management Plan

A Storm Water Management Plan will be developed for the DNNP site by OPG's contractor in phases, the first being site preparation. The contractor's detailed Storm Water Management Plan will be reviewed and accepted by OPG.

The following mitigation will be implemented to minimize impacts to storm water during site preparation:

- Storm water management shall meet MECP regulations, and contractors obtain permits where required.
- Storm water management shall conform to the following documents:

Document Name	Description
Storm water Management Planning and Design Manual	Technical and procedural guidance for planning, design and review of storm water management practices, including guidance for storm water management sewage works approvals under Section 53 of the *Ontario Water Resources Act*.
The Regional Municipality of Durham Sewer Use By-Law No 55-2013	Defines and governs the use of the Region's sewer works.

- Features shall be designed in accordance with the Ministry of the Environment (MOE) Storm water Management Planning and Design Manual.
- Spills prevention planning is to be integrated into the storm water management design.
- Site drainage and storm water management plan are to be implemented to maintain contribution of flow within the Darlington Creek watershed for the north tributary, to allow for the south tributary to contribute flow in a new channel directed toward Lake Ontario, for the area of the Northeast Landfill Area.
- The biodiversity of Coot's Pond is to be maintained by implementing storm water management techniques to provide for adequate flow and water quality (e.g., Total Suspended Solids) management in Coot's Pond. It is anticipated that the site preparation activities would not impact Coot's Pond. If the activities pose any risk of impacting Coot's Pond, appropriate mitigation measures shall be implemented.
- As no usage of explosives are anticipated for site preparation, the explosive related aspect of storm water management is not included in this document. Should the site preparation activities require explosives be used, appropriate mitigation measures shall be implemented (e.g. appropriate collection, management and disposal of water having come into contact with blasting agents).

In addition, where necessary, contractors will develop and implement Storm Water Control Plans using good industry management practices, such as:

- Sediment control techniques such as a silt or turbidity curtain during dredging and a filtration system during dewatering.
- Employ dust and sediment control measures to minimize suspended sediment concentrations.
- Erosion and sediment control measures to be installed prior to clearing and grubbing activities.

- Treatment of dewatering discharges, if required.
- Storm water conveyance systems.
- Conventional storm water treatment methods such as storm water management ponds and oil-grit separators.

Characteristics and design of the storm water control plan includes the following as applicable:

- A plan of drainage for the site, and a layout of storm water management facilities, including treatment trains, outfalls to the lake, and basic design parameters (e.g. flows, volumes, retention times, return periods).
- Integration of spills prevention planning.
- Storm water management ponds will be developed, as necessary, and will be sufficient in number and size to provide adequate retention times for collected runoff in advance of its discharge to surface water.
- Surface water runoff from buildings will be collected in storm water management ponds and then discharged to an existing drainage course or Lake Ontario.
- Management features such as swales, ditches, and retention ponds, to optimize opportunities in recharging the groundwater flow regime with surface water run-off will be implemented.
- OPG will establish toxicity testing criteria and provide testing locations, testing methodology and frequency for storm water as requirements arise. No process effluents are expected during Site Preparation.

11.2 Groundwater Management Plan

A Geological and Hydrogeological Environment Assessment of Environmental Effects Technical Support Document (NK054-REP-07730-00015) was prepared in 2009, and a geotechnical study was conducted in 2021 in advance of site preparation activities.

Project site preparation activities that have the potential to affect groundwater quality include, but are not limited to:

- Storage, use, and potential spills of fuels, chemicals and hazardous materials.
- Excavation, drilling, and construction around springs and groundwater seeps as well as other activities that can expose groundwater to surface contamination.
- Activities that produce waste fluid and water which could infiltrate into the ground (e.g., washing of cement and concrete, equipment maintenance).

The CNSC and MECP administer groundwater management regulations at nuclear facilities through the application of the *Nuclear Safety and Control Act* and the *Environmental Protection Act*.

For the project, groundwater may be required to be removed for excavation activities and, depending on the volume of water, approvals (e.g., Permit to Take Water) may be required. A Groundwater Management Plan may be required to ensure control measures are implemented before, during, and after any pumping or dewatering activity occurs for the duration of the project. In general, the groundwater on site eventually discharges to Lake Ontario.

Contractors should refer to OPG documents as applicable:

Document number	Document Name	Description
N-GUID-10120-10001	Inspection of Groundwater Monitoring Wells	Provides instructions on how to conduct inspections of groundwater monitoring wells.
N-PROC-OP-0044	Contaminated Lands And Groundwater Management	Outlines directions and accountabilities for establishing and managing an OPG Nuclear groundwater monitoring program.

11.3 Dewatering Management Plan

Dewatering of excavations may occur during the site preparation phase. Water taking for construction programs falls under 3 different criteria that trigger varying levels of regulatory approval requirements as noted below:

Volume (L/Day)	Requirement
<50,000	no requirement
>50,000 to <400,000	Registration as per O. Reg. 63/16
>400,000	Permit To Take Water

Where activities anticipate drawing >50,000 L/day, proper planning and regulatory approval will be obtained prior to work being conducted. Under owner-only contracts, the contractor is responsible for preparing the Permit to Take Water (PTTW) and meeting all requirements. PTTW information is to be provided to OPG.

Water taking for road construction and construction site dewatering that meets the MECP criteria in O. Reg. 63/16 shall be registered in the Environmental Activity and Sector Registry (EASR). To meet this requirement, water taking meets the following criteria:

- Surface water takings are more than 50,000 L/day and are for road construction purposes that meet specified criteria about the purpose, rate or location of the water taking.
- Construction site dewatering involving more than 50,000 L/day and less than 400,000 L/day.

- Upon completion of the design process and construction planning a determination shall be made regarding whether the project is predicted to trigger an EASR. Registration will be required in advance of construction on the site.
- In the event that dewatering is required, as a control measure, flow meters will be installed on pumping equipment to ensure that the dewatering limit is not exceeded. The following items shall be recorded and tracked by the contractor and reported to the MECP:
    - For each day on which groundwater, storm water or both was taken, the average rate at which it was taken in litres per second.
    - The volume of groundwater, storm water or both taken each day in litres.
    - A record of the following information with respect to any complaint received with respect to the taking or discharging of groundwater, storm water or both and the complaint relates to the natural environment:
    - The date and time the complaint was received.
    - A copy of the complaint, if it is a written complaint.
    - A summary of the complaint, if it is not a written complaint.
    - A summary of measures taken, if any, to address the complaint.

The Contractor dewatering the site is to retain a copy of the information above as well as each water taking plan and each discharge plan for a period of five years from the day it was prepared. A copy is provided to OPG for annual OPG Environment's Permit To Take Water report.

In the event that changes occur at the site and the daily limit is predicted to be exceeded, pumping is to be halted and the Contractor be contacted immediately. Dewatering can only continue once a permit has been issued from the MECP or upon the start of a new day.

Water discharged under O. Reg. 63/16 shall be in compliance with the requirements in the regulation in including:

- Pumped through a sediment retention mechanism such as filter trap or settling pond.
- To protect the watercourse, dewatering at a rate less than 50,000L/Day must be released greater than 30 m from a water body.
- If discharge is within 30 m of a water body the turbidity are monitored to ensure that the discharge does not exceed 8 Nephelometric Turbidity Units (NTU) above the background levels of that waterbody and the MECP shall be notified in advance. All turbidity data shall be recorded and provided to the OPG Contract Owner as requested.
- Discharge to land or a storm sewer has no visible petroleum hydrocarbon film or sheen present in the water, storm water or both. If an oil sheen is present and/or hydrocarbon odour (i.e., Hydrocarbon contamination evident), or the water does not meet criteria it will be held for release to MECP certified vac truck.

12.0 TERRESTRIAL ENVIRONMENT MANAGEMENT PLAN

All work executed at the DNNP site is to consider potential impacts on nesting birds and other species, to be outlined in SSEPs.

The Contractor will apply Good Industry Management Practices during clearing and grubbing activities to reduce environmental impact including the following activities as applicable:

- Measures outlined in Section 8.1 (Site Area Environmental Management) and Section 8.6 (Erosion and Sediment Control), including minimizing the area to be cleared to the extent feasible.
- Minimizing compaction of roots in areas not planned to be cleared.
- Compliance with seasonal constraints and regulatory requirements.
- Use of best management practices to prevent or minimize the potential runoff of sediment and other contaminants into wildlife habitat associated with Coot's Pond. It is anticipated that the site preparation activities would not impact Coot's Pond. If the activities pose any risk of impacting Coot's Pond, appropriate mitigation measures shall be implemented.
- Throughout site preparation, incorporate to the extent practicable measures to maintain access for wildlife travel on the east-west wildlife corridor during site preparation activities and to enhance the corridor function for the long term. The corridor runs east-west just north of the CN rail line (see Figure 1).
- Incorporate landscape design principles in the design and construction of the Project to reduce the visibility of the operating facility.

Refer to Nuclear Projects - Environmental Requirements Guideline (R-11) for other good environmental practices surrounding clearing and grubbing activities to reduce environmental impacts.

OPG is performing a thorough evaluation of site layout opportunities in order to minimize the overall effects on the terrestrial and aquatic environments and maximize the opportunity for quality terrestrial habitat rehabilitation.

OPG will develop and implement a management plan for species at risk in association with a Species at Risk Permit. Species at risk habitat is mapped in the 2020 DNGS Annual Biodiversity Report (R-12).

OPG has prepared a Rare Plant Salvage and Pond Decommissioning Plan for implementation if needed, as well as identified suitable locations where butternut trees can be planted. Once area to be cleared is identified, planning will take place to re-plant cultural meadow and cultural thicket. Native forb seeds will be included in the seed mixture for Cultural Meadow re-planting. Cultural meadow and cultural thicket habitat loss will be offset by developing restoration plans tailored to the needs of the Eastern Meadowlark, Bobolink, and Monarch including native grasslands consisting of tall vegetation species.

Any wetland loss resulting from the Site Preparation activities will be addressed accordingly. If applicable, OPG will ensure loss of ponds is compensated by designing compensation ponds that maximize ecological function (not necessarily limited to “like-for-like”), and new fish-free wetland ponds with riparian plantings will be created in appropriate areas on the DN site.

OPG will implement mitigation measures if impacts cannot be avoided for the following:

- Include the Butternut tree in site planting plans through Endangered Species Act (ESA) Notice of Activity Process (Notice of Butternut Impact).
- Salvage and relocate aquatic plants and biota where practicable, to a suitable existing or created habitat in advance of site preparation activities.
- Salvage and relocate or replant rare plant species to suitable existing or created habitat in advance of site preparation activities.

12.1 Wildlife Encounters

Wildlife encounters pose a potential risk for stress or injury to both the wildlife and site personnel. To reduce the risk to both wildlife and humans, the following measures will be implemented:

- Hunting, trapping or fishing by project personnel is not permitted on site;
- Site and working areas will be kept clean of food scraps and garbage;
- Wildlife protected disposal containers will be used and will be regularly emptied and transferred to the local landfill; and
- No personal pets, domestic or wild, will be allowed on the site.

In addition to the above protection measures, the following protocol will be followed in the event of a wildlife encounter:

- Workers will not attempt to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot within the project site;
- Equipment and vehicles are to yield the right-of-way to wildlife;
- Wildlife sightings or encounters will be reported to the OPG Contract Owner. All actions in response to nuisance animals will be the responsibility of OPG;
- If the nest of any bird is encountered during construction activities, work around the nest will be immediately stopped and the OPG Contract Owner notified; and
- Any incidents that result in the displacement or killing of wildlife will be reported to OPG Contract Owner, complete with details on the incident.

12.2 Bank Swallow Management Plan

OPG is committed to conducting its operations and activities in a manner that protects the natural environment. Efforts shall be made during site preparation planning to avoid or minimize potential adverse impact to bank swallows and/or their habitat on the DNNP site. However, if potential impact to bank swallows or their habitat are identified, an ESA permit is required and a Bank Swallow Management Plan shall be prepared and implemented in accordance with conditions of the ESA permit.

13.0 IN-LAND AQUATIC ENVIRONMENT MANAGEMENT PLAN

Site preparation activities are not expected to affect in-land aquatic habitat. This will be confirmed through the Request for Review process with the Department of Fisheries and Oceans (DFO). Should loss of aquatic habitat be expected due to in-land site preparation activities, aquatic environment mitigation measures and plans will be developed to compensate for the loss.

The application of Good Industry Management Practices for controlling effects will involve environmental protection procedures and measures which are technically and economically feasible.

In-stream work (culvert replacement/installation and effluent points) will incorporate appropriate mitigation measures/best management practices for fish salvage including appropriate isolation.

Mitigating Measures

During these works, mitigation measures will be implemented to minimise potential environmental effects as applicable:

- If required, prior to the initiation of in-water works a qualified biologist will assess the proposed activities, and the Contractor shall obtain necessary permit approvals;
- If required, in-water work will not take place within the timing windows for the protection of local fish populations during their spawning periods outlined by the Ministry of Northern Development, Mines, Natural Resources and Forestry. If work is required within the spawning window a qualified biologist shall provide an assessment of potential harm to spawning habitat and species and provide appropriate limitation on construction based on their assessment, along with obtaining required regulatory approval;
- Contractors ensure that appropriate mitigation is in place to avoid the entry of deleterious substances including, but not limited to, materials such as sediment and fuel during watercourse crossing work or any in water works;
- Removal and disposal of sediment (i.e. from culverts and ditches) is to be completed in accordance with the Soil Management Plan (see Section 10.1);
- Construction of a clear-span bridge in lieu of the box culvert crossing of Darlington Creek to avoid in-water works and the loss of creek habitat, if required. Alternatively (the

preferred option) the Darlington Creek stream crossing can be avoided entirely by relocating the access route during detailed design;

- Through the use of appropriate setbacks and sediment and erosion controls during construction, the crossing would avoid harmful alteration, disruption or destruction (of fish habitat), if required;
- Fish salvage from work areas (catch and release), depending on extent of in-water work in areas such as lake infill, Coot's Pond (only if required); and
- Salvage and re-use/relocation of aquatic plants and amphibians where practicable.

14.0 DISCOVERY OF PHYSICAL AND CULTURAL HERITAGE RESOURCES

Historic resource material that is disturbed, destroyed, or improperly removed from a site represents a cultural loss of information and history that could otherwise be handled and interpreted in an efficient and appropriate manner. Identified heritage resource sites will be protected and monitored during project activities.

Based on the survey conducted during the EA, there are no heritage resources sites at the DNNP site or along the access road, apart from the Brady and Crumb sites that were recovered in 2012/2013. These findings are detailed in the Physical And Cultural Heritage Resources Existing Environmental Conditions Technical Support Document (R-13).

However, should previously undocumented archaeological resources be discovered the following procedure will be followed.

Procedure:

- The organization, upon becoming aware of the discovery of archaeological resources, whether Euro-Canadian or Indigenous, must stop all work in the immediate area of the discovery until OPG authorized personnel, having consulted with the licensed consultant archaeologist, permits resumption of the work.
- Report the find immediately to the OPG Contract Owner or delegate.
- Mark the site's visible boundaries. Personnel will not move or remove any artifacts or associated material unless advised to do so by the licensed consultant archaeologist.
- OPG to engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.
- Where Indigenous artefacts are confirmed, OPG will advise previously consulted Indigenous communities and a meeting arranged, including Stakeholder Relations, to discuss the findings with them in a timely manner.
- OPG will report the find to the Ministry of Heritage, Sport, Tourism and Culture Industries as per the requirements of the Ontario Heritage Act and to previously consulted Indigenous communities.

- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar, Burials at the Ministry of Government and Consumer Services.
- An Indigenous heritage awareness program, cross-cultural training and artefact awareness should be provided to contractor staff on site to promote the nature and value of heritage resources and the importance of these sites to the identified Indigenous communities. Refer to DNNP Training Plan (R-5) for related training.

15.0 REPORTING ENVIRONMENTAL EVENTS

Expectation: As OPG is committed to meeting all legal requirements and other environmental commitments, all environmental events must be reported immediately to the appropriate parties.

Environmental events typically result from:

- leaks and spills, regardless of magnitude or location
- failure to meet a term or condition of a permit, licence or approval
- violation of an environmental legal requirement

Examples of environmental events may include:

- hydraulic fluid or gasoline spill from equipment or vehicle
- violation of municipal noise by-law
- destroying bird nests against environmental laws
- harm to endangered species
- not following an Environmental Compliance Approval for a piece of equipment

Requirements:

- All environmental events must be reported immediately as per Preliminary Event Notification (R-14) procedure, to the OPG Contract Owner or delegate who will call OPG's Duty Shift Manager should it be reportable.
- Potential environmental events should also be reported to OPG's Contract Owner or delegate.
- Use local OPG procedures and forms to report and document the environmental event as required by OPG. Under Owner Only scenarios, the Contractor would provide all information necessary for OPG to complete required OPG forms.
- Reporting internally and to external agencies may be required by OPG.
- A Station Condition Record (SCR) will be filed according to Processing Station Condition Records (R-15) procedure documenting the time, location, circumstances of the event. In addition, for spills/leak events: document the volume and substance, and

"spill" should be included in the SCR title. N-FORM-11493 Spill Report is completed in a timely manner and sent to the OPG Environmental Advisor.

- OPG will take the lead on spill reporting. Reporting of any spill to the MECP Spills Action Centre will be OPG responsibility if the spill takes place on OPG property.
- Contractors include all environmental events in the project performance and close-out reports.

16.0 STAKEHOLDER FEEDBACK

Questions and concerns about DNNP are to be handled through OPG's established stakeholder relations process.

Should questions, comments or other feedback be received from the public, direct stakeholders to OPG's "contact us" webpage (www.opg.com/contact-us) or through the Darlington New Nuclear Webpage (www.opg.com/newnuclear). Additionally, stakeholders can email darlingtonnuclear@opg.com or call our toll-free number 1-800-461-0034. OPG Stakeholder Relations will receive and follow-up on questions and other feedback.

17.0 ABBREVIATIONS AND ACRONYMS

BMP	Best Management Practices
CNSC	Canadian Nuclear Safety Commission
DNGS	Darlington Nuclear Generating Station
DNNP	Darlington New Nuclear Project
DN	Darlington Nuclear
EA	Environmental Assessment
EASR	Environmental Activity and Sector Registry
EIS	Environmental Impact Statement
EMPP	Environmental Management and Protection Plan
EMS	Environmental Management System
ESA	Endangered Species Act
JRP	Joint Review Panel
MSDS	Material Safety Data Sheet
KM	Kilometers
MECP	Ministry of Environment, Conversation and Parks
MOE	Ministry of Environment (now MECP)

MOECC	Ministry of Environment and Climate Change (now MECP)
NTU	Nephelometric Turbidity Units
OPG	Ontario Power Generation
PRSL	Power Reactor Site License
SCR	Station Condition Record
SSEP	Site Specific Environment Plan
SMR	Small Modular Reactor

18.0 REFERENCES

[R-1] Darlington New Nuclear Project Commitments Report, NK054-REP-01210-00078 R007, issued Feb 1, 2022.

[R-2] Environmental Impact Statement New Nuclear – Darlington Environmental Assessment, OPG, NK054-REP-07730-00029 R000, issued Sept 28, 2009.

[R-3] Environmental Policy, OPG, OPG-POL-0021 R009, issued Sept 8, 2021.

[R-4] Environment, Health and Safety Managed System, OPG-PROG-0005 R008, issued Mar 16, 2021.

[R-5] Darlington New Nuclear Project Training Plan, NK054-PLAN-01210-00029 R001, issued Jan 27, 2022.

[R-6] Ontario Ministry of the Environment and Climate Change (MOECC). Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources. https://files.ontario.ca/management-approaches-for-industrial-fugitive-dust-sources.pdf

[R-7] Environmental Protection Act, R.S.O 1990.

[R-8] Guideline for Implementing Spill Prevention and Contingency Plans Regulatory Requirements (O. Reg. 224/07), Ministry of the Environment, May 2007.

[R-9] Darlington New Nuclear Project Soil Characterization Program, NK054-REP-07730-00053 R000, issued Sept 23, 2021.

[R-10] Darlington New Nuclear Project Soil Management Plan, NK054-PLAN-07730-00018 R000, issued Dec 7, 2021.

[R-11] Nuclear Projects - Environmental Requirements Guideline, N-GUID-09701-10013 R004, issued June 4, 2019.

[R-12] 2020 DNGS Annual Biodiversity Report, D-REP-07811-0877487, archived Dec 14, 2020.

[R-13] Physical and Cultural Heritage Resources Existing Environmental Conditions Technical Support Document New Nuclear – Darlington Environmental Assessment, NK054-REP-07730-00010 R000, issued Sept 18, 2009.

[R-14] Preliminary Event Notification, N-PROC-RA-0020 R021, issued Jan 29, 2021.

[R-15] Processing Station Condition Records, N-PROC-RA-0022 R036, issued Dec 23, 2019.

19.0 FIGURE 1 – DARLINGTON NUCLEAR SITE - WILDLIFE CORRIDOR

Darlington Nuclear Site Wildlife Corridor Report, D-REP-07811-0811369.

20.0 FIGURE 2 – DARLINGTON NUCLEAR SITE – COOT'S POND