STAFF REPORT
SUBMITTED BY: Chris Frotten & Cameron Whiteway
DATE: February 13, 2023
SUBJECT: Provincial Treated Wood Disposal Ban
STRATEGIC OBJECTIVE: N/A

ORIGIN

As of July 5, 2023, treated wood is banned from disposal at construction and demolition debris disposal cells in the province. This report outlines the available options for handling these products at our site and aims to present a thorough analysis of potential strategies to ensure compliance.

BACKGROUND

Public concerns about storage/transfer/processing start-ups as well as groundwater impacts and fires prompted the NS Department of Environment to audit approval holders and launch a public consultation in 2018 on C&D waste management.

Treated wood is wood that is chemically treated during manufacturing so that it will resist decay. During a factory treatment process, creosote, pentachlorophenol, or other chemical preservatives are injected into the wood. Treated wood does not include wood treated at home, like stained or painted wood.

As mentioned, treated wood is now banned from disposal at C&D debris disposal cells in the province as specified in the Solid Waste Resource Management Regulations (attached). This was effective July 5, 2023.

The Department's guidelines were first developed in the 1990s. According to the Department, treated wood has been banned from disposal at C&D sites to help prevent contamination of groundwater and surface water, because:

- Disposal cells can have large volumes of treated wood. A typical deck on a home requires about 1 tonne of treated wood, while a disposal facility can receive 100s of tonnes of treated wood each year.
- Over time, as treated wood decays, the chemicals that are used to preserve the wood can be released.

- Municipal solid waste landfill cells are built to prevent leakage and to detect contaminated water leakage. Contaminated water is collected and is treated before discharge into the environment. C&D debris disposal cells are not built to this same standard.

For this first year, C&D debris facility operators such as us are to provide education to residents and commercial haulers on why treated wood has been banned. Enforcement of the disposal ban will begin in July of this year.

DISCUSSION

The effective management of pressure treated wood at our construction and demolition debris disposal site has become a pressing concern following the recent ban on its disposal in Nova Scotia. In response to this regulatory shift, a comprehensive options assessment has been conducted to explore various strategies for handling pressure treated wood. This section aims to provide a detailed analysis of the available options, considering factors such as operational impact, cost implications, regulatory compliance, and long-term sustainability.

Dedicated Disposal Area

Implementing a dedicated disposal area within our construction and demolition debris site specifically for pressure treated wood involves establishing a segregated space where such materials can be safely gathered and managed. This option requires careful planning, minor infrastructure modifications, staff training, and ongoing monitoring to ensure compliance with the new regulations and effective waste management practices. This option would also have us coordinating with the Region of Queens Waste Management Facility in Caledonia to dispose of the material as they are equipped to handle pressure treated wood.

In this option, we would identify a suitable location within the disposal site for the dedicated disposal area, considering factors such as accessibility, proximity to other waste streams, and environmental impact. We would install appropriate signage, barriers, and containers to clearly delineate the designated area and prevent contamination with other materials and would have to provide comprehensive training to staff on identifying, segregating, and handling pressure treated wood safely. Finally, we would implement protocols for regular inspections and monitoring to ensure adherence to disposal guidelines.

Establishing a dedicated disposal area ensures compliance with the ban on pressure treated wood disposal while providing a controlled environment for proper management. Segregating pressure treated wood from other waste streams reduces the risk of contamination and environmental harm, protecting soil and water resources. Centralizing pressure treated wood disposal in a dedicated area streamlines waste management processes and facilitates effective monitoring, enforcement and disposal.

The availability of sufficient space within the disposal site for a dedicated disposal area is limited, so careful planning and optimization of existing resources will be necessary. Establishing and maintaining a dedicated disposal area will necessitate investment in minor infrastructure modifications, staff training, and ongoing monitoring, potentially increasing operational costs. Ensuring that residents and contractors

are aware of the designated disposal area and understand the importance of compliance with disposal guidelines may also require extensive outreach and education efforts.

While establishing a dedicated disposal area for pressure treated wood requires careful planning and resource allocation, it offers a practical solution for ensuring regulatory compliance and protecting the environment. Collaboration with stakeholders and ongoing monitoring would be essential for successful implementation and operation of the dedicated disposal area.

Cease Acceptance

Another option is to cease acceptance of pressure treated wood at our disposal site altogether. In this option, residents and contractors would be required to transport pressure treated wood to the nearest second-generation landfill or designated facility equipped to handle such materials. In our case, this would be the Region of Queens Waste Management Facility in Caledonia – approximately 1 ¼ hours away.

This option would redirect pressure treated wood to a facility equipped with appropriate disposal methods, mitigating environmental harm and ensuring compliance with the ban on pressure treated wood disposal. It would also eliminate the need for on-site segregation, treatment, or specialized disposal infrastructure, mitigating the risk of additional operational costs.

This said, residents and contractors may face challenges in transporting pressure treated wood to Caledonia, particularly for those located in remote areas. Ensuring compliance with the new policy may also require increased monitoring and enforcement measures to prevent illegal dumping. Finally, the inconvenience of transporting pressure treated wood to alternative facilities would likely result in dissatisfaction among residents and contractors.

While ceasing acceptance of pressure treated wood at our disposal site presents logistical challenges, it aligns with regulatory requirements and promotes responsible waste management practices. Collaboration with neighboring facilities and effective communication with stakeholders will be essential for successful implementation and compliance.

BUDGET IMPLICATIONS

The implementation of the available options will have various budgetary implications, and it is imperative to consider these financial aspects for effective planning.

Dedicated Disposal Area

Implementing a dedicated disposal area requires an initial investment in infrastructure modifications, including signage, barriers, and containers. Costs may also include site preparation, such as grading and leveling, to accommodate the designated area. Staff training programs are essential to educate personnel on proper identification, handling and disposal procedures for pressure treated wood. Additionally, monitoring equipment, such as cameras, may be necessary to ensure compliance with waste management regulations. Ongoing operational costs include maintenance and upkeep of the disposal area, including repairs, cleaning, and regular inspections. Waste management services, such as collection, transportation,

and disposal would increase as the pressure treated wood will need to be transported to Caledonia Educational outreach efforts, including the development and distribution of materials, workshops, and community events, would also require budget allocation. However, potential revenue from tipping fees for pressure treated wood disposal could offset some operational expenses and contribute to financial sustainability.

Ceasing Acceptance

Ceasing acceptance of pressure treated wood at the disposal site would be less costly to the municipality compared to establishing a dedicated disposal area. By redirecting pressure treated wood to alternative facilities, the municipality can avoid significant expenses associated with infrastructure modifications, staff training, monitoring equipment, and ongoing operational costs. While communication and outreach efforts are necessary to inform stakeholders about the new policy and alternative disposal options, the overall budget impact we be lower than establishing and maintaining a dedicated disposal area. However, it's essential to acknowledge that this option could potentially instigate more illegal dumping, necessitating increased enforcement efforts and associated costs. Despite this concern, the long-term cost savings from ceasing acceptance at the disposal site outweigh initial expenses, making it a more financially viable option for the municipality.

LEGAL IMPLICATIONS

N/A

PUBLIC CONSULTATION/COMMUNICATIONS

The chosen option will be communicated through various channels, including press releases to local media outlets, updates on our website and social media platforms, and signage at the disposal site. Educational materials will be developed to explain the procedures of the chosen option. Overall, a comprehensive approach will ensure widespread awareness and understanding among the public.

RECOMMENDATION

After thorough consideration of the options for handling pressure treated wood at our site, **we recommend pursuing the establishment of a dedicated disposal area while implementing a tipping fee to compensate for additional transportation costs.** This approach combines the benefits of effective waste management with financial sustainability, ensuring compliance with regulatory requirements while mitigating the financial impact on our operations.

SUGGESTED MOTION

Move to recommend to Council to establish a dedicated disposal area at our C&D disposal specifically for pressure treated wood and implement a tipping fee to compensate for additional transportation costs.

ALTERNATIVES

- Establish a dedicated disposal area without implementing a tipping fee.

ATTACHMENTS

- Provincial Treated Wood Disposal Ban FAQ
- Solid Waste Management Facility Guidelines for Construction and Demolition Debris Storage, Transfer, Process and Disposal

Provincial Treated Wood Disposal Ban

Provincial Treated Wood Disposal Ban

What is treated wood?

Treated wood is wood that is chemically treated during manufacturing so that it will resist decay. During a factory treatment process, creosote, pentachlorophenol, or other chemical preservatives are injected into the wood. Treated wood does not include wood treated at home, like stained or painted wood.

Where is treated wood used in construction/demolition?

Treated wood is commonly used outside for things like telephone poles, railway ties, wharves, fences, decks, and retaining walls.

Is treated wood safe to use?

Treated wood is safe to use in outside construction applications. It is designed to keep the preservatives in the wood while it is in use.

New treated wood contains tags that identify the preservative, the amount of preservative retained in the wood, manufacturer, suitability for in ground or above ground applications, and consumer safety information on safe use. Consumer safety information would also be available through the retailer.

Treated wood should be disposed according to the requirements of your jurisdiction.

Why is treated wood banned from disposal at Construction and Demolition (C&D) debris disposal sites?

Treated wood is banned from disposal at C&D sites by the Province of Nova Scotia to help prevent contamination of groundwater and surface water, because:

- Disposal cells can have large volumes of treated wood. A typical deck on a home requires about 1 tonne of treated wood, while a disposal facility can receive 100s of tonnes of treated wood each year.
- Over time, as treated wood decays, the chemicals that are used to preserve the wood can be released.

- Municipal solid waste landfill cells are built to prevent leakage and to detect contaminated water leakage. Contaminated water is collected and is treated before discharge into the environment. C&D debris disposal cells are not built to this same standard.

Does the disposal ban apply to new treated wood only?

No. The disposal ban applies to both new and old treated wood waste from construction or demolition activities.

When does the disposal ban become effective?

Treated wood is banned from disposal at C&D debris disposal cells by the Province of Nova Scotia as specified in the Solid Waste Resource Management Regulations. This is effective July 5, 2023. For the 1st year, C&D debris facility operators will be providing education to residents and commercial haulers on why treated wood has been banned. ***Enforcement of the disposal ban will commence on July 5th, 2024.***

How do you identify treated wood?

New treated wood is tagged to identify the type of preservative that was used to treat the wood.

Creosote timber is usually brown, tan, or black, tarry-coated beams and lumber. It may leak tar when warmed. Creosote timber will often have an oily smell when new or if the wood is cut.

Pressure treated wood is typically green or brown in color and may have small slits where the preservative was injected into the wood during the manufacturing process.

It should be assumed that wood from the construction, renovation, or demolition of wharves, fences, decks and retaining walls, along with old telephone poles and railway ties, is treated wood.

How do I dispose of treated wood?

It is recommended that you keep treated wood separate during a construction, renovation, or demolition project. This makes it easier to manage and may reduce your disposal costs.

If treated wood is in good condition, think about reusing it.

If you have to dispose of treated wood, it's a good idea to check with the disposal facility before you bring it to them. C&D debris disposal sites can still accept treated wood for shipment to landfill. However, they may require you to separate out treated wood from other wood and C&D debris.

Burning of treated wood is not permitted.

Contact your municipality for further information on treated wood disposal options.

What if I have additional questions about treated wood?

If you have additional questions regarding treated wood, please contact WRM@novascotia.ca

Creosote treated wood

Pressure treated wood tags

New treated wood

New treated wood

Treated wood walkway

Treated wood retaining wall

Solid Waste Management Facility Guidelines
for Construction and Demolition Debris Storage, Transfer, Process and Disposal

Effective July 5, 2023

NOVA SCOTIA

Contents

Version Control: Signed by the Deputy Minister of Environment and Climate Change on March 8, 2023, with effective date of July 5, 2023. Replaces the *Construction and Demolition Debris Disposal Site Guidelines*, 1997, previously amended October 9, 2003.

1 About this Guideline

The purpose of this guideline is to provide guidance and outline the acceptable minimum requirements for siting, constructing, operating and rehabilitating a Solid Waste Management Facility for the storage, transfer, processing and disposal of construction and demolition debris (C&D Facility). Final assessment of applications for an Approval for the construction and operation of a C&D Facility will be on a case-by-case basis. Nova Scotia Environment and Climate Change (herein referred to as the Department) may impose terms and conditions in an Approval that exceed the minimum requirements outlined below to prevent adverse effects.

2 Legislation

This guideline references the following provincial Acts, Regulations and Departmental Guidelines, as amended from time to time.

a) *Environment Act, S.N.S. 1994-95, c.1*

b) *Solid Waste-Resource Management Regulations*

c) *Activities Designation Regulations*

d) *Sulphide Bearing Material Disposal Regulations*

e) *Approval and Notification Procedures Regulations*

f) Contingency Planning Guidelines

g) Guidelines for Environmental Noise Measurement and Assessment

3 Definitions

For the purpose of this guideline, a term defined in the Activities Designation Regulations Division III Part 2 or Solid Waste Resource Management Regulations has the same meaning when used in this guideline.

"abandoned" means site operations have stopped for a minimum of 36 consecutive months or notification of abandonment has been received in accordance with the Approval and Notification Procedures Regulations.

"active area" means the area occupied by the disposal cell, including rehabilitated disposal cells, any structure(s), storage area, processing location, leachate treatment systems, settling ponds, wastewater management infrastructure, and/or overburden associated with construction and demolition debris activities. The active area excludes access roads.

"professional hydrogeologist" means a person with hydrogeology training and experience, licensed to practice in accordance with the Geoscience Profession Act or a professional engineer.

"industrial waste" means garbage, refuse, sludge, rubbish, tailings, debris, litter and other discarded materials resulting from industrial or commercial activities requiring Approval under Division V of the Activities Designation Regulations.

From the effective date of this guideline until July 5, 2023 when the term is defined in the *Solid Waste Resource Management Regulations*, the definition of "treated wood" for the purpose of this guideline means:

> "treated wood" means wood chemically treated during manufacturing for the purpose of resisting decay;

After July 5, "treated wood" shall have the same definition of as provided in the Solid Waste Resource Management Regulations.

4 Guideline

4.1 Siting and Separation Distance Requirements

(1) Applications for Approval to construct or expand a C&D Facility must be accompanied by a letter from the municipal unit stating that the proposed C&D Facility meets all applicable zoning, planning restrictions and such other by-laws as may be required.

(2) Unless otherwise provided for in this Section or directed in an Approval issued by the Department, a C&D Facility must meet the minimum separation distances measured from the boundary of the active area to the feature listed in Table 1.

(a) Separation distances apply only to features present on the date the Approval Application is received by the Department.

(b) The minimum separation distances do not apply to the approved active area if the Approval was issued prior to the effective date of this Guideline, unless the C&D Facility has been abandoned or fails to maintain an active Approval.

(c) Future expansion of the active area for existing facilities must meet the separation distances.

(3) An Administrator may impose additional terms and conditions in an Approval increasing a minimum separation distance in Table 1, in order to prevent adverse effects.

Table 1: Minimum separation distances

Feature	Horizontal Distance (m)
A) Watercourse (top of bank) and Wetland (boundary) or marine water body	30
B) Property line of C&D Facility (PID(s))	30
C) Municipal drinking water supply	See section 5) below
D) Foundation of any off-site structure used for commercial, industrial, residential, or institutional purpose	90
E) Off-site dug or drilled drinking water supply well (other than municipal drinking water supply)	90

(4) An Administrator may reduce the minimum separation distance required for feature B in Table 1, if the Administrator is satisfied that the reduction would not cause an adverse effect and the applicant has provided both of the following:

(a) a copy of an easement which has been recorded in the registry of deeds, from the affected property owner(s) granting and permitting the encroachment on the minimum separation distance; and

(b) a satisfactory written explanation of why the alternate separation distance is necessary, including evidence that reduced separation distances at the site will not create the potential for adverse effects.

(5) For feature C in Table 1, the minimum separation distances for a municipal drinking water supply are as follows:

(a) outside the municipal drinking water supply's Source Water Protection Area, and

(b) outside the boundary of any provincially designated Protected Water Area.

(6) An Administrator may reduce the minimum separation distance required for feature C in Table 1 if the Administrator is satisfied that the reduction would not cause adverse effects and the applicant for an Approval has provided the following:

(a) a satisfactory written explanation of why the alternate separation distance is necessary; and

(b) written confirmation from the municipal drinking water supply operator that they are satisfied that the reduced separation distance creates no potential adverse effects and would not contravene any regulations or by-laws applicable to the municipal drinking water supply, or municipal source water protection plans.

(7) An Administrator may refuse to approve a reduction in the minimum separation distances in Table 1, if any of the following apply:

(a) allowing the reduced separation distance would cause adverse effects which do not align with the intent of the Act, Regulations or this Guideline;

(b) the reasons or evidence provided supporting the request to reduce the minimum separation distance are insufficient and do not in the opinion of the Administrator align with the intent of the Act, Regulations, or this Guideline; or the minimum separation distances set out in Table 1 can be met.

4.2 General C&D Facility Design, Construction, and Operation

(1) The C&D Facility design must be prepared and signed by a professional engineer.

(2) The C&D Facility design must be approved by an Administrator prior to construction.

(3) All phases of construction shall be overseen by a professional engineer, or technologist who works under the supervision of a professional engineer.

(4) Written certification by a professional engineer is required, within 6 weeks of project completion, stating that the construction and installation of the C&D Facility meets the requirements of the approved drawings and specifications.

(5) The certification must confirm that all as-built drawings and any other relevant documentation have been turned over to the Approval Holder(s) by the professional engineer.

(6) C&D Facilities for storing, transferring, processing and disposal of C&D must be designed and constructed in accordance with the following minimum requirements, unless otherwise provided in the Approval. All facilities must have:

(a) Controlled entry and exit infrastructure;

(b) Weigh scales;

(c) Legible signage at the entrance of the C&D Facility that includes:

(i) days and hours of operation,

(ii) a list of acceptable/unacceptable waste, and

(iii) emergency contact numbers

(d) Exposed areas are to be stabilized to prevent erosion and sedimentation.

(7) All facilities must have the following operational requirements:

(a) Direct supervision of the C&D Facility is required during the hours it is open and accepting materials.

(b) Litter must be controlled.

(c) Measures must be in place to prevent illegal dumping and vandalism.

(d) Air quality, noise, odours, and dust must be controlled and as a minimum follow the requirements stated in Appendix B.

(e) An effective vector control program that includes but is not limited to birds, insects, and rodents, must be in place.

(i) If the Department deems the vector control inadequate, additional control measures or changes to the operation may be required.

(f) Daily inspections must occur to maintain good housekeeping practice and appropriate action is to be taken to reduce vector and litter problems.

(8) Waste acceptance

(a) Unless otherwise approved by an Administrator, Facilities can only accept and store, transfer, process and dispose of C&D debris and are prohibited from accepting municipal solid waste, industrial waste, hazardous waste, asbestos waste, or designated materials from Schedule "B" of the *Solid Waste Resource Management Regulations*.

(b) All loads of C&D waste are to be inspected prior to unloading for the presence of municipal solid waste, industrial waste, hazardous waste, liquid waste, treated wood, or designated materials from schedule "B" of the *Solid Waste Resource Management Regulations*.

(i) Procedures shall be in place to manage unacceptable materials that are received.

(ii) As of July 5, 2023, treated wood is banned from disposal at all C&D facilities in Nova Scotia.

(iii) At a minimum, Approval Holders will enact the treated wood ban in accordance with the procedures established in Appendix C.

(iv) Treated wood can be accepted for storage, transfer, and processing, but it is not permitted at the disposal area unless authorized in writing by the Department.

4.3 Groundwater, Surface Water and Leachate

(1) Surface water draining and controls infrastructure for the active area is required, including but not limited to, sedimentation ponds.

(2) A groundwater, surface water and leachate monitoring program, including monitoring wells and surface water sampling locations, in accordance with Appendix "A" is required. The plan must be prepared by, signed by, and carried out under the supervision of a professional hydrogeologist.

(a) The Department reserves the right to modify groundwater surface water and leachate monitoring locations, parameters and frequency and to require remedial measures based on the results of monitoring data and/or site inspections.

(b) An applicant can request an alternate to the required groundwater surface water and leachate monitoring program where:

(i) the C&D Facility operation is limited to storage, transfer and processing, and;

(ii) the applicant demonstrates to the satisfaction of the Department that alternative design is capable of achieving an equivalent or higher level of protection. Any proposal for an alternative design will be assessed on the technical merits of the design and will be evaluated on a case-by-case basis.

(3) Groundwater surface water and leachate quality compliance criteria will be set by the Department for each site and these criteria must be met by the Approval Holders.

(4) The determination of compliance criteria both on and off site by the Department includes an evaluation of the protection of groundwater quality for drinking water resources as well as protection of surface water quality for healthy aquatic life.

(5) Information in Appendix A indicates how elevated natural background, or baseline groundwater conditions for sites may be accounted for in submissions to the Department, with respect to monitoring and potential triggers for action.

(6) The Approval Holder(s) shall replace, at their expense, any water supply which has been lost or damaged as a result of the designated activity, as authorized and required by the Department.

4.4 C&D Storage, Transfer, and Processing

(1) Storing, transferring and processing activities shall be designed, constructed and operated in accordance with the following minimum requirements, unless otherwise provided in the Approval:

(a) Individual stockpiles of material must meet the minimum clearances and not exceed the maximum base and height listed in Table 2.

(i) The clearance requirement stated in Table 2 between stockpiles and a building on the property is permitted to be waived where an individual stockpile area has a base area not greater than 5 m2.

Table 2: Stockpile size limits and required separation distances

Stockpiled Material		Max Base Area, m^2	Max Height of Storage, m	Clear Space Around each stockpile (m)	Clear space between stockpile(s) and building(s)
A)	Mixed C&D debris, dimensional lumber or brush piles	1 000	≤ 3 >3 but ≤6	6 twice the height of storage to a max of 12	15
B)	Wood Chips	15 000	18	9	15
C)	Pallets	1 000	3	15	15

(2) C&D debris stored for the purpose of diverting for beneficial reuse that could deteriorate due to precipitation and produce leachate, shall be managed to prevent deterioration. Materials include but are not limited to drywall, cardboard, and architectural salvage.

4.5 C&D Disposal Cell

(1) Disposal cells shall be designed, constructed, and operated in accordance with the following minimum requirements, unless otherwise provided in the Approval:

(a) The disposal cell must have a minimum thickness of 1 m of soil liner (or alternate) across the entire cell with a maximum hydraulic conductivity of 1 x 10^{-6} cm/sec;

(i) The soil may be amended, if required, with an admixture such as bentonite clay in order to achieve the required hydraulic permeability; however, the hydraulic conductivity must be uniform throughout the entire thickness of the soil.

(ii) An alternative to the soil may be considered. Any alternate shall be subject to the same qualifying requirements for application.

(b) The base of the soil liner shall be a minimum of 1 m above the maximum seasonal high elevation of the water table. Prior to construction, water table elevations must be measured over a one-year period by hydrogeological testing methods submitted for review and acceptance by the Department;

(c) The disposal cell shall have a leachate collection layer situated immediately above the soil liner and constructed:

(i) To provide a means of collecting leachate without exceeding a leachate depth in this layer of 300 mm;

(ii) With the ability to convey leachate to a common point;

(iii) With a minimum hydraulic conductivity of 1x10-3 cm/sec;

(iv) Sloped such that it can adequately drain the leachate. The sloping should account for the possibility of settling occurring beneath the collection system network;

(v) With adequate protection placed above the leachate collection system to prevent clogging of this layer.

(d) Disposal cell vertical expansion must be structurally stable and capable of supporting anticipated loads.

(2) Cover material, for the active disposal cell, shall be placed in accordance with the plan for cover placement approved by the Administrator and shall include:

(a) A minimum of 15 cm of compacted soil once per month or another frequency as determined by an Administrator.

(b) Cover otherwise to be used weekly or as required to control litter.

(3) Treated wood is prohibited from use as cover material at the C&D Facility.

(4) The final disposal cell cover system shall be constructed in accordance with the following requirements:

(a) A grading pad consisting of a minimum of 300mm thick structural fill material capable of supporting the material above, and designed to accommodate settling and consolidation of the waste material such that ponding of water does not occur on the surface;

(b) A low hydraulic conductivity layer, to limit surface water infiltration, consisting of a minimum of 750 mm soil with a hydraulic conductivity of 1 x 10-6 cm/sec or less;

(i) The soil must be protected during and after construction from damage due to frost, desiccation, over-hydration, differential movement and impact. It is to be constructed in layers such that it can achieve uniform compaction throughout its entire thickness;

(ii) The soil may be amended, if required, with an admixture such as bentonite clay in order to achieve the required hydraulic permeability; however, the hydraulic conductivity must be uniform throughout the entire thickness of the soil;

(iii) An alternative to the soil may be considered. Any alternate shall be subject to the same qualifying requirements for application; and

(c) A vegetative layer consisting of a minimum of 300 mm of topsoil with vegetative surface to stabilize the final cover system from the forces of wind, water erosion and to provide low-maintenance surface.

4.6 Alternate Design, Construction, and Operation

(1) The Department may require additional design features including, but not limited to, liner systems, leachate treatment systems, other control infrastructure. Additional requirements may be based on the volume and type of material to be disposed of, as well as the proximity and type of receptors that could be impacted.

(2) In the event an alternate design to the minimum requirements is proposed, it is the responsibility of the applicant to demonstrate to the satisfaction of the Department that the alternative design can achieve an equivalent or higher level of protection. Any proposal for an alternative design will be assessed on the technical merits of the design and will be evaluated on a case-by-case basis.

4.7 Security and Insurance

(1) In accordance with the *Activities Designation Regulations*, privately owned, Solid Waste Management Facilities that dispose of C&D debris must:

(a) provide financial security in the manner specified by the *Approval and Notification Procedure Regulations*, and

(b) obtain insurance in the amount required by the Department subject to any terms that the Minister prescribes.

4.8 Records

(1) The following records are to be maintained for a period of five (5) years and made available to the Department upon request:

(a) The quantity and type of waste per load received;

(b) The quantity of waste disposed annually. If the waste is sent offsite for disposal, include the name of the receiving facility;

(c) The quantities and types of designated material(s) from schedule "B" of the *Solid Waste Resource Management Regulations* removed and sent for beneficial reuse or for disposal at an approved facility and the name of the receiving facility;

(d) The quantities of treated wood removed and sent for beneficial reuse or for disposal at an approved facility and the name of the receiver;

(e) The quantities and type of any other unauthorized wastes removed and sent for disposal at an approved facility and the name of the receiving facility;

(f) Complete records of inspections, maintenance, repairs;

(g) The date and quantity of monthly soil covered applied, including the:

(i) the area of the active disposal cell that required cover;

(ii) estimated density of soil used, and;

(iii) total weight of soil used.

(h) The date and quantity of other cover material applied.

(i) The details of any release to the environment;

(j) Information required in Appendix C: Treated Wood Compliance Level;

(k) The complaints received and the steps taken to determine the cause of the complaint, the corrective measures taken to alleviate the cause and prevent its recurrence;

(l) A copy of the Annual Report, and;

(m) Any other information requested by the Department.

(2) Records are to be submitted on an annual basis in accordance with the requirements of the DATACALL as operated by DivertNS on behalf of the Department.

(3) Operation and Maintenance Manual with the following information is required to be kept at the C&D Facility at all times and made available to the Department upon request:

(a) Drawings and specifications of the C&D Facility;

(b) A complete description of the operational procedures;

(c) Monitoring well logs and surface water monitoring logs, including the location plans showing the monitoring points;

(d) Contingency plans to deal with wastes that are not acceptable for disposal;

(e) A procedure for maintaining the disposal records; and

(f) A copy of the Approval.

(4) A contingency plan, in accordance with the Department's Contingency Planning Guideline, as amended from time to time, is required on how emergency issues including but not limited to fire, explosions and spills will be addressed. The contingency plan:

(a) Must be reviewed and updated annually, or more frequently whenever equipment or procedures change;

(b) Must be communicated to staff, including any changes;

(c) Must be located at the site at all times and made available to the Department or fire and emergency personnel, if requested; and

(d) Shall be sent to the local fire department.

(5) Employees are to be trained in accordance with the contingency plan and those training records are to be kept at the C&D Facility for a period of 5 years and made available to the Department, if requested.

(6) All necessary materials and equipment must be available at all times to respond to emergencies in accordance with the C&D Facility's Contingency Plan.

4.9 Annual Report

(1) Each year an Annual Report for ground water, surface water and leachate is to be prepared. The Report shall be prepared and signed by a professional hydrogeologist and include, but not be limited to, the following information:

(a) A summary of all groundwater, surface water and leachate monitoring data specified in Appendix A and compared with applicable criteria. The data is to be presented in table format;

(b) A review of field methodologies, including sampling techniques;

(c) A description of the groundwater, surface and leachate water monitoring network;

(d) A review of the current groundwater, surface water and leachate monitoring program and recommendations or modifications, as applicable;

(e) The current and historical static water elevation data in tabular format, groundwater gradients and flow direction;

(f) The current and historical groundwater and surface water and leachate quality including an analysis of spatial and temporal trends with comparison to applicable water quality objectives and historical (baseline) data in tabular format, as applicable;

(g) Laboratory certificates of analysis, as applicable;

(h) The identification of any non-compliance with the groundwater, surface water and leachate compliance criteria set for the C&D Facility; and,

(i) Any current or proposed corrective actions to address non-compliance issues identified.

(2) The annual report shall be available in hard copy and digital format, maintained for the duration of the approval, and made available to the Department upon request.

4.10 Rehabilitation and Closure

(1) A final rehabilitation plan is to be submitted to the Department for Approval at least sixty (60) days prior to abandonment of the C&D Facility.

(2) The rehabilitation plan shall include but not be limited to the description of the:

(a) Construction and maintenance of a surface water management system;

(b) Post-closure monitoring programs at the site, including, but not limited to, the inspection and maintenance of the final disposal cell cap, leachate management, surface water and groundwater monitoring; and

(c) Decommissioning/removal of buildings and auxiliaries.

(3) The rehabilitation plan shall be implemented once deemed acceptable by the Department.

APPENDIX A:
Groundwater Surface Water and Leachate Monitoring Program
Hydrogeological and Surface Water Assessment

Hydrogeologic Assessment

Prior to the establishment or expansion of a C&D Facility, a report shall be prepared by a professional hydrogeologist and submitted to the Department, which includes plans, specifications, and descriptions of the hydrogeologic conditions of the C&D Facility, adjacent and nearby properties, and the regional area in which the C&D Facility is located, including at a minimum, the following;

(1) A general description of the regional geologic and hydrogeologic conditions occurring within 5 km of the C&D Facility. This description should identify any unstable soils or bedrock, indicate the location and nature of any boundaries to groundwater movement, and characterize the significance of groundwater resources and the use made of these resources;

(2) A description of local hydrogeologic conditions occurring at the C&D Facility, adjacent and other properties within 500 m of the C&D Facility, and the description shall indicate how local conditions relate to regional conditions,

(3) A baseline Water Well Survey of all existing water supply wells within 500 m of the C&D Facility is required. All water well locations for the survey must be field located and visited. The survey is to include information on the water well construction details, sampling for water quality assessment and a water quantity assessment;

(4) A detailed hydrogeologic and geotechnical investigation of the C&D Facility which establishes soil, rock, and baseline groundwater conditions at the site must be implemented prior to submission of the Part V application. Baseline monitoring, well water table elevation monitoring, and water quality monitoring must be conducted quarterly for one year prior to submission of the Part V application. Investigations must include a determination by industry standard hydrogeological practices and description of the following, at a minimum:

   (a) local geology, faulting and stratigraphic descriptions,

   (b) borehole fracture and RQD (rock quality designation) descriptions,

(c) water table elevations,

(d) piezometric groundwater levels,

(e) hydraulic conductivities determined in each monitoring well using well hydraulic testing (e.g. slug tests),

(f) vertical and horizontal hydraulic gradients,

(g) groundwater flow directions,

(h) baseline groundwater quality, and

(i) if the 95th percentile parameter baseline value exceeds the quality criterion for a parameter, a statistical trend analysis of subsequent monitoring data is to be conducted to evaluate parameter concentrations for increases due to site activity;

(5) An interpretation of the results of the detailed hydrogeologic investigation of the C&D Facility, including plans, specifications, and descriptions; and,

(6) An assessment of the suitability of the C&D Facility for waste disposal purposes considering the regional, local, and site specific hydrogeologic conditions, the design of the C&D Facility, and the contingency plans for the control of leachate and landfill gas.

Surface Water Assessment

Prior to the establishment or expansion of a C&D Facility, a report shall be prepared by a professional hydrogeologist, professional engineer or surface water specialist and submitted to the Department, which includes plans, specifications, and descriptions of the surface water conditions of the C&D Facility, adjacent and nearby properties, and the regional area in which the C&D Facility is located, including at a minimum, the following:

(7) A general description of the surface water features occurring within 5 km of the C&D Facility that is based on the contributing/receiving drainage area, catchment, subwatershed or watershed that is sufficiently large to assess the range and extent of potential effects. This description will include, but not be limited to, flood plains, natural watercourses, wetlands, drainage paths and boundaries, streamflows, surface water quality, and sources of water supply;

(8) A description of the local surface water features occurring at the C&D Facility, and adjacent and other properties within 1000 m of the C&D Facility, and the description shall include how local feature relate to regional features;

(9) A detailed surface water investigation of the C&D Facility to assess water quality, quantity, and habitat conditions of the surface water features identified on the C&D Facility; and,

(10) A description and monitoring details for all surface water management at the site to include: site drainage/runoff, surface water collection and discharge locations and volumes, sampling of discharge water quality and the use of sedimentation and treatment ponds as well as other features, including but not limited to engineered wetlands.

Operation and Monitoring

Groundwater Monitoring

Prior to the establishment or expansion of a C&D Facility, a groundwater monitoring plan is to be prepared by a professional hydrogeologist and submitted to the Department for review and acceptance. The groundwater monitoring network must be designed to adequately characterize and monitor groundwater quality, considering geological and hydrogeological conditions and all potential sources of contamination, as well as established points of compliance. Each C&D Facility must have a groundwater monitoring program which includes, but is not limited to the following:

(11) The location and design of groundwater monitoring wells including:

(a) A minimum of one groundwater monitoring well installed hydraulically up-gradient of the C&D Facility;

(b) A minimum of three monitoring wells installed hydraulically down-gradient and surrounding of the C&D Facility;

(c) An evaluation of monitoring well completion depths, including the potential need for multi-level installations, to be acceptable to the Department;

(d) Groundwater monitoring well locations may include compliance points established at some distance outside the C&D Facility active area, adjacent to surface watercourses and in intermediary or other areas of the site, as required by the Department;

(e) The number and location of monitoring wells will be dependent on the size of the C&D Facility active area and site conditions. These locations are to be provided to the Department for review and acceptance. In most cases, more than the minimum (4) groundwater wells will be required due to the size of sites and location of water resource features.

(12) Sampling methodologies must use industry best practices and include, but not be limited to the following:

(a) correct purging of monitoring wells prior to sampling, and

(b) field filtering for groundwater dissolved parameters.

(13) Representative samples of groundwater within the C&D Facility shall be:

(a) A minimum baseline collection of one year groundwater data with quarterly measurement is required (i.e. every three months) prior to commencement of site operations, or as otherwise approved by the Department. Parameters sampled are to include those in column 1 of Schedule 1 for quarterly samples and column 3 of Schedule 1 for one (1) annual sample.

(b) For a minimum of two years following commencement of site operations, sampling obtained quarterly from all groundwater monitoring wells and analyzed for the parameters listed in column 1 of Schedule 1; and

(c) Obtained from selected wells, determined by the Department in consultation with the Approval Holder, on an annual basis for the enhanced monitoring parameters listed in column 3 of Schedule 1.

(14) After the minimum two-year sampling period, the Approval Holder can request the frequency of sampling be reduced to semi-annual sampling by submitting a report providing rational acceptable to the Department.

(15) The Department reserves the right to modify groundwater monitoring well locations, parameters, and frequency, and to require remedial measures based on the results of monitoring data and/or site inspections.

Surface Water and Leachate Monitoring

A program for monitoring surface water and leachate quality, quantity, and biological features shall be conducted including, at a minimum, the following:

(16) Representative samples of surface water and leachate being discharged from the C&D Facility and of any waterbody, including upstream control locations (which must be included during the same event as sampling of any other surface water locations), which may be affected by leachate, stormwater runoff, or sediment from the C&D Facility, shall be:

(a) Obtained quarterly, and be analyzed for the parameters listed in column 2 of Schedule 1 and for other parameters of concern identified in the surface water assessment or as required by the Department;

(b) Obtained from selected locations, including leachate/effluent discharge, determined by the Department in consultation with the Approval Holder, on an annual basis for the enhanced monitoring parameters listed in column 3 of Schedule 1.

(17) Annual monitoring of biological features to assess the composition and any changes to the benthic community present in any waterbody, located downstream of active areas of the C&D Facility, that may be affected by leachate, stormwater runoff, or sediment from the C&D Facility;

(18) The Department reserves the right to modify surface water locations, parameters, and frequency, and to require remedial measures based on the results of monitoring data and/or site inspections.

Schedule 1: Groundwater, Leachate and Surface Water Monitoring Parameters

PARAMETER GROUP	COLUMN 1 **Groundwater**	COLUMN 2 **Surface Water and Leachate**	COLUMN 3 **Enhanced monitoring parameters for select groundwater, Surface Water and Leachate**
General Chemistry and Metals	Alkalinity	Alkalinity	
	Aluminum	Aluminum	
	Ammonia	Ammonia	
	Antimony	Antimony	
	Arsenic	Arsenic	
	Barium	Barium	
	Boron	Boron	
	Cadmium	Cadmium	
	Calcium	Calcium	
	Chloride	Chloride	
	Chromium	Chromium	
	Conductivity	Conductivity	
	Copper	Copper	
	Iron	Iron	
	Lead	Lead	
	Magnesium	Magnesium	
	Manganese	Manganese	
	Mercury	Mercury	
	Nickel	Nickel	
	Nitrate	Nitrate	
	Nitrite	Nitrite	
	Total Kjeldahl Nitrogen	Total Kjeldahl Nitrogen	

PARAMETER GROUP	COLUMN 1 **Groundwater**	COLUMN 2 **Surface Water and Leachate**	COLUMN 3 **Enhanced monitoring parameters for select groundwater, Surface Water and Leachate**
General Chemistry and Metals (continued)	pH	pH	
	Hardness	Hardness	
	Total Phosphorus	Total Phosphorus	
	Potassium	Potassium	
	Sodium	Sodium	
		Suspended Solids	
	Total Dissolved Solids	Total Dissolved Solids	
	Sulphate	Sulphate	
	Uranium	Uranium	
	Vanadium	Vanadium	
	Zinc	Zinc	
Organics		Biochemical Oxygen Demand (BOD_5)	
	Chemical Oxygen Demand	Chemical Oxygen Demand	
	Dissolved Organic Carbon	Total Organic Carbon	
	Phenol	Phenol	
Field Parameters		Temperature	
	pH	pH	
	Conductivity	Conductivity	
		Dissolved Oxygen	
	Monitoring well water levels	Flow	

PARAMETER GROUP	COLUMN 1 **Groundwater**	COLUMN 2 **Surface Water and Leachate**	COLUMN 3 **Enhanced monitoring parameters for select groundwater, Surface Water and Leachate**
Volatile Organic Compounds (VOC)			Acetone
			Benzene
			Bromodichloromethane
			Bromoform
			Bromomethane
			Carbon tetrachloride
			Chlorobenzene
			Chloroform
			Dibromochloromethane
			1,2-Dichlorobenzene
			1,3-Dichlorobenzene
			1,4-Dichlorobenzene
			Dichlorodifluoromethane
			1,1-Dichloroethane
			1,2-Dichloroethane
			1,1-Dichloroethylene
			cis-1,2-Dichloroethylene
			trans-1,2-Dichloroethylene
			1,2-Dichloropropane
			cis-1,3-Dichloropropylene
			Ethylbenzene
			Ethylene dibromide
			n-Hexane
			Methyl ethyl ketone
			Methylene chloride

PARAMETER GROUP	COLUMN 1 **Groundwater**	COLUMN 2 **Surface Water and Leachate**	COLUMN 3 **Enhanced monitoring parameters for select groundwater, Surface Water and Leachate**
Volatile Organic Compounds (VOC) (continued)			Methyl isobutyl ketone
			Methyl-t-butyl ether
			Styrene
			1,1,1,2-Tetrachloroethane
			1,1,2,2-Tetrachloroethane
			Tetrachloroethylene
			Toluene
			1,1,1-Trichloroethane
			1,1,2-Trichloroethane
			Trichloroethylene
			Vinyl chloride
			m&p-Xylene
			o-Xylene
			Xylenes, TotalSEMI
TPH			TPH (gas, fuel/lube ranges)
PAH			Acenaphthene
			Acenaphthylene
			Anthracene
			Benzo(a)anthracene
			Benzo(a)pyrene
			Benzo(b/j)fluoranthene
			Benzo(g,h,i)perylene
			Benzo(k)fluoranthene
			Chrysene
			Dibenz(a,h)anthracene

PARAMETER GROUP	COLUMN 1 **Groundwater**	COLUMN 2 **Surface Water and Leachate**	COLUMN 3 **Enhanced monitoring parameters for select groundwater, Surface Water and Leachate**
PAH (continued)			Fluoranthene
			Fluorene
			Indeno(1,2,3-cd)pyrene
			1-Methylnaphthalene
			2-Methylnaphthalene
			Naphthalene
			Phenanthrene
			Pyrene
Chlorophenols			2-Chlorophenol
			2,4-Dichlorophenol
			2,4-Dimethylphenol
			2,4-Dinitrophenol
			Pentachlorophenol
			Phenol
			2,4,5-Trichlorophenol
			2,4,6-Trichlorophenol

APPENDIX B:
Air Quality, Noise and Odour

Air Quality

(1) Air emissions from the C&D Facility cannot contribute to an exceedance of the maximum permissible ground level concentrations of the contaminants specified in the Air Quality Regulations.

(2) Monitoring of ambient air contaminants shall be conducted at the request of the Department.

(a) The number and location of the monitoring station(s) shall be established by a qualified person retained by the Approval Holder(s) and

(b) The proposed plan submitted to the Department for acceptance; this may include point(s) beyond the property boundary of the Site.

(3) The use of oil as a dust suppressant is prohibited.

Noise

(4) Noise generated from the activity must comply with the equivalent sound level criteria identified in the Nova Scotia Environment and Labour "Guidelines for Environmental Noise Measurement and Assessment" dated May 18, 2005, as amended from time to time.

(5) Noise shall be monitored at the request of the Department. The number and location of the monitoring station(s) for noise measurement shall be established by a qualified person retained by the C&D Facility. The proposed plan must be deemed acceptable by the Department.

Odours

(6) Procedures shall be in place to ensure that odours from any material are minimized, and

(7) If the Department determines that the designated activity is generating excessive odours, the Approval Holder(s) shall be required to take any measures required by the Department to address those odours, including but not limited to reducing or ceasing operation.

APPENDIX C:
Treated Wood Compliance Level

The Department assesses both the risk of an activity and an Approval Holder's willingness to comply when determining our response to non-compliance with the Environment Act and its regulations.

As of July 5, 2023, treated wood is banned from disposal at all Construction and Demolition (C&D) facilities in Nova Scotia.

The Department will consider an Approval Holder's willingness to comply with this ban, in part, through the establishment and implementation of a progressive compliance level, auditing and diversion program.

Compliance Level

(1) As of July 5, 2024, all C&D disposal facilities shall not permit any load to arrive at the disposal cell of their C&D Facility if the amount of treated wood in the load exceeds 20% by weight, as amended from time to time.

(2) All loads accepted for audit or sorting must be processed at a location other than the disposal area unless authorized in writing by the Department. The Department will develop an auditing protocol before July 5, 2024.

(3) This compliance level is subject to change by the Department at any time. The Department will provide a minimum of one year notice prior to the effective date of any new compliance level for the treated wood ban.

C&D Disposal Facility Requirements

(4) As of July 5, 2023, the following actions must be taken by the Approval Holders for all C&D disposal facilities:

(a) All Approval Holders are to establish an educational program for the treated wood ban, that includes but is not limited to, the development of educational material for distribution to their clients (including any resources that may developed by the Department), visible C&D Facility signage, and online notification.

(b) Educational material will describe the ban and the auditing and diversion program to be implemented at the C&D disposal Facility.

(c) Signage indicating the treated wood ban is to be posted at the C&D disposal Facility in a location easily visible to all clients approaching or entering the C&D Facility.

(d) Notice of the treated wood ban is to be placed on the Approval Holder's webpage and/or other online platforms.

(5) As of July 5, 2024, Approval Holders will include the identification of treated wood in their visual inspection program:

(a) Loads that are visually estimated to approach or surpass the compliance level must be sorted and the treated wood must be redirected.

(b) Physical auditing of the visual inspections for accuracy are to be completed twice a year for sites receiving below 5,000 tonnes of C&D waste per year and four times a year for sites equal to or larger than 5,000 tonnes per year by sorting and removing the treated wood from selected loads and determining the percent by weight of the treated wood in the selected loads.

(c) Records must be kept of every load that fails visual inspection and how the load was managed (ex. audited, sorted, redirected).

(d) Records of the visual inspections, sorting and auditing must be made available to the Department upon request.

(6) As of July 5, 2025, the following actions must be taken by the Approval Holders for all C&D disposal facilities:

(a) Approval Holders will continue to use their visual inspection program.

(b) In addition, Approval Holders will be required to conduct physical audits of visual inspections at least four times a year for sites receiving below 5,000 tonnes of C&D waste per year and eight times a year for sites equal to and larger than 5,000 tonnes per year that conform to the following requirements:

(i) Loads containing treated wood will be directed to a sorting area and will separate out and determine the percent by weight of

1. Treated wood;

2. Other unacceptable non-C&D waste; and

3. Acceptable C&D material for disposal.

(ii) Records of the results of the physical audits will be kept and made available to the Department upon request.

Department Audits

(7) On or after July 5, 2025, the Department staff may require the Approval Holder to perform physical audits of selected loads at any time. Compliance and enforcement action may be taken in response to non-compliance with the treated wood disposal ban or any other non-compliance discovered during an inspection.

NOVA SCOTIA