

SANITARY SEWER REPLACEMENT ON KIRWIN AVENUE/LITTLE JOHN LANE (COOKSVILLE) PROJECT 23- 2129 AND ELIA AVENUE AND KINGSBRIDGE GARDEN CIRCLE PROJECT 23-2126

CITY OF MISSISSAUGA, ONTARIO

DUST BEST MANAGEMENT PRACTICES PLAN

RWDI # 2306558

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SUBMITTED TO

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1 INTRODUCTION

1.1 Overview

RWDI Air Inc. (RWDI) was retained by Arcadis IBI Group to provide air quality and noise and vibration consulting services in support of the engineering services for Class EA Services for the 525-mm Sanitary Sewer - Kirwin Avenue/Little John Lane (Cooksville and the 600 & 675-mm Sanitary Sewers on Elia Avenue and Kingsbridge Garden Circle, City of Mississauga (Projects 23-2129, and 23-2126). The work involves replacement of sanitary sewer of various diameters.

Construction activities that are likely to generate nuisance dust with this work includes:

- Demolition and removal of roadways and sidewalks with heavy equipment such as jackhammers, excavators, backhoes, loaders, and haul trucks,
- Movement of trucks and heavy equipment on temporary or permanent road surfaces,
- Tailpipe emissions from vehicles, heavy equipment, power tools, generators, and stationary combustion equipment,
- Delivery and handling of clean bulk materials,
- Concrete forming, pouring and cutting,
- Delivery and placement of prefabricated concrete or steel structures, and
- Installation of asphalt.

This Best Management Practices Plan (BMPP) identifies the potential sources of air quality emissions and recommends measures to control emissions from construction activities that meet and/or exceed the current industry standards. Implementation of these measures will ensure that air emissions are effectively controlled and impacts to neighbouring residents are minimized.

1.2 Components of a Best Management Practices Plan

A BMPP is a detailed document that outlines the fugitive dust sources at a given site and describes the measures that shall be used to control emissions from these sources. The Ontario Ministry of the Environment Conservation and Parks (MECP) recommends that the BMPP be based on a process of “Plan, Do, Check, Act”, as described in the Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources. While not specific to construction sites, this guidance does provide a reasonable starting point for development of a BMPP specific to construction operations. Another document of reference is ‘Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities’ prepared by Cheminfo Services Inc. This BMPP is designed to meet the recommendations of the MECP in a form that provides clear and concise procedures for site personnel.

1.3 Air Emissions at Construction Sites

Typically, the dust at a construction site has the following characteristics:

- Primarily composed of calcium carbonate, magnesium carbonate, oxides of iron, magnesium and aluminum and/or silicon.
- SPM, representing total dust emissions.
- PM₁₀, comprising 19-55% of suspended particulate emissions¹.
- PM_{2.5}, comprising 3-14% of suspended particulate emissions².
- Crystalline silica content of onsite material, estimated at less than 20%.

Gaseous contaminants associated with tailpipe emissions from vehicles and heavy equipment consist of:

- Carbon monoxide (CO).
- Nitrogen oxides (NO_x in the form of NO₂).
- SPM, PM₁₀ and PM_{2.5}, although generally all tailpipe particulate emissions are PM_{2.5} or smaller.
- Sulphur dioxide (SO₂).
- Organic compounds including benzene, benzo(a)pyrene, 1,3-butadiene, formaldehyde, acetaldehyde, and acrolein.

1.4 Overview of the Best Management Practices Plan

This document provides a separate section for each activity that results in emissions, including a description of the activity, complete with control measures applicable to each particular source.

2 DEMOLITION, SITE CLEARING & EXCAVATION

2.1 Activities Included

- Demolition and removal of asphalt and sidewalks.
- Fugitive dust emissions from clearing and excavation of the site using excavators, backhoes, loaders, and haul trucks, including the handling of potentially contaminated fill that may exist at the site.
- Decommissioning and replacing sanitary sewer mainlines, sanitary laterals, and manhole chambers.

¹ Standards Development Branch, Local Air Quality Section, Ontario Ministry of the Environment Conservation and Parks (MECP)

² Based on data from the AP-42 Compilation of Air Pollutant Emission Factors, published by the United States Environmental Protection Agency.



2.2 Controls

- Minimize drop heights for debris.
- Enclose chutes and cover any bins to store material.
- Vacuum up debris where possible and avoid long term storage of debris onsite.
- Operational controls, such as conducting work in phases to limit emissions, or restricting work under dry, windy conditions.
- Application of water to disturbed surfaces or stockpiles.
- Covering of disturbed surfaces with vegetation, stones or geotextiles as soon as practicable.
- Use of wind fencing around material stockpiles or excavation areas when feasible, especially near water bodies.
- Limit the number of vehicles and heavy equipment operating on-site to the lowest number possible to maintain optimal operating schedule.

3 BULK MATERIAL HANDLING

3.1 Activities Included

- Delivery and handling of clean bulk materials such as fill, topsoil or aggregates.

3.2 Controls

- Operational controls, such as spacing out deliveries throughout the day instead of multiple deliveries in rapid succession, and restricting deliveries and handling under dry, windy conditions.
- Minimize material drop heights into trucks or onto storage piles.
- Properly shape storage piles and minimize disturbance when possible.
- Use of wind fencing around material stockpiles or truck loading areas when feasible.
- Cover or wet down dry materials to prevent blowing dust and debris.
- Secure loads on haul trucks, including covering cargo beds when feasible.

4 FABRICATION PROCESSES

4.1 Activities Included

- Concrete forming and pouring.
- Delivery and placement of prefabricated concrete or steel structures.
- Cutting, drilling or grinding of concrete or steel structures.



4.2 Dust Controls

- Limit the time that ready-mix concrete trucks are on-site by optimizing the pour volume to limit the number of pours from each truck.
- Use prefabricated concrete structures where possible to limit the number of ready-mix truck deliveries required.
- Use prefabricated structural steel components to limit the requirement to weld and grind at the site.
- Use correctly sized pre-cast sections to limit any cutting or drilling.
- When cutting or grinding concrete, or grinding or welding steel components, use shrouds and fume extraction systems where possible.

5 VEHICLE & HEAVY EQUIPMENT MOVEMENT

5.1 Activities Included

- Movement of trucks and heavy equipment on temporary or permanent road surfaces.
- Tailpipe emissions from vehicles, heavy equipment and stationary combustion equipment.

5.2 Controls

- Apply water or provincially approved chemical dust suppressant to travelled unpaved areas under dry conditions, with the capacity to apply water multiple times per day.
- Clean paved road surfaces near the site regularly through wet or vacuum (or wet-vacuum) sweeping to prevent track-out of silt onto public roads.
- Contractor shall establish truck-staging zones for vehicles waiting to load or unload material at the Site. Such zones shall be located where diesel emissions have the least impact on abutting properties and the general public.
- Idling time for delivery trucks, dump trucks and all other internal combustion powered equipment shall be reduced as appropriate.
- Contractor shall ensure that internal combustion powered engines are located away from fresh air intakes, air conditioners and windows.
- Limit speed of on-site vehicles to 20 km/h.
- Limit the number of vehicles and heavy equipment operating on-site to the lowest number possible to maintaining optimal operating schedule.
- Where possible, ensure that all diesel-fired heavy equipment or stationary combustion equipment used at the site meets the Tier 3 emission standards, at a minimum. Tier 4 equipment is preferred.



6 ADMINISTRATION

6.1 Implementation Schedule

- All control measures should be in a state of readiness before activities at the site commence.

6.2 Implementation Plan

- Formal training on new and existing operating procedures shall be provided to relevant staff before activities at the site commence.
- The Contract Administrator shall communicate the BMPP to responsible supervisors, who shall ensure personnel are following operating procedures defined in the BMPP.
- The Site Manager shall be responsible for ensuring the BMPP is followed.
- A copy of the BMPP shall be kept on file at the site office.

7 INSPECTION & MONITORING

7.1 Inspection and Maintenance

- The public roadways near the site shall be inspected at least 3 times per day, to ensure that there is no track-out of silt onto the public roads, and a physical record shall be kept of the inspections with initials of responsible person, date and time.

7.2 Monitoring

- Visual inspection of the entire site for dusty conditions shall occur at a minimum of twice daily, and a physical record shall be kept of the inspections with initials of responsible person, date and time.
- The Site Manager or their delegate will be responsible for monitoring current conditions and weather forecasts from Environment Canada, to subsequently help plan for current and next day watering needs and other measures.

7.3 Record Keeping

- Records shall be kept of daily inspections of track out on public roadways and dusty site conditions.
- Records shall be kept of when and how dust control measures are implemented and when complaints are received, if any.
- These records shall be kept at the site office, at a minimum, and shall be available for inspection.

8 COMPLAINT TRACKING AND RESOLUTION

8.1 Complaint Tracking

Complaints regarding air emissions from construction activities are normally associated with fugitive dust. Odours may also be a source of complaint due to the operation of diesel-fired vehicles or heavy equipment, however these are typically less likely. The process outlined here can be applied in either case.

A sign posted at the site entrance shall include the Site Manager or on-site designates phone number for neighbours or members of the public to call if they have concerns.

The Contract Administrator shall request that The City of Mississauga or the Region of Peel notify them immediately if they receive a complaint, to allow for prompt response and follow-up.

Complainants should be requested to identify the location of the incident as well as the time of day that it was detected and any other information that they feel is relevant.

8.2 Complaint Resolution

When a complaint is received, the Site Manager shall ensure the following steps are undertaken:

1. Inspect the site and surrounding area to identify possible sources of visible dust or odour.
2. Obtain weather data for the time of the event.
3. Note all on-site activities at the time that the complaint was made.
4. If the information indicates that the facility is not the source of the dust complaint, the complainant shall be notified of this finding unless the complainant was anonymous or chose not to leave a contact number.

If it is determined that the complaint may, in fact, have been related to the facility operations, the following response procedures shall be followed, in the order provided below:

Level 1 – Correction of operations as soon as practical. The Site Manager shall ensure that dust control measures are being followed. Control measures shall be stepped up or operations may be curtailed, as required.

Level 2 – Re-review of Best Management Practice Plan. If the Level 1 response does not adequately resolve the problem, the BMPP shall be re-reviewed to look for additional control measures to address the source of the dust complaint.

Level 3 – Operational modifications. If the Level 2 response does not adequately resolve the problem, the construction contractor shall commit to making physical changes to the facility to address the source of the dust complaint, such as additional enclosures, relocation of equipment, or additional paving.



9 GENERAL STATEMENT OF LIMITATIONS

This report entitled Sanitary Sewer Replacement on Kirwin Avenue/Little John Lane (Cookeville) Project 23-2129 and Elia Avenue and Kingsbridge Garden Circle Project 23-2126- Dust Best Management Practices Plan, dated March 19, 2024, was prepared by RWDI AIR Inc. ("RWDI") for Arcadis IBI Group ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using published methodologies, literature and professional judgment. The plan presented within this document is based on available information for the project. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Arcadis IBI Group as part of the Sanitary Sewer Replacement on Kirwin Avenue/Little John Lane (Cookeville) Project 23-2129 and Elia Avenue and Kingsbridge Garden Circle Project 23-2126. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.