BBJ Environmental Monitoring

The Borough-Based Jails (BBJ) project team is committed to ensuring there is limited impact during our construction activities requiring the Design Builders not just to comply but go above and beyond the required New York State and City requirements.

Alerts & Oversight

The US Environmental Protection Agency (EPA) sets acceptable levels on air quality standards called Permissible Exposure Levels (PEL) and National Ambient Air Quality Standards. The NYC Department of Environmental Protection (DEP) and Department of Buildings (DOB) define noise and vibration level standards and limits.

The BBJ Construction Management Team, Project Contractors and Environmental Specialists receive real-time **alerts** when Particulate Matter (PM), decibels (dBA), or velocity of vibration (ips) numbers approach an **Action Level**. The Action Level is set below the respective standard/limits. When Action Levels are reached, the construction activities are assessed, and the contractor immediately acts to apply **steps to evaluate the source and follow steps to mitigate.**

The BBJ team provides Environmental Monitoring updates at quarterly Neighborhood Advisory Committee (NAC) meetings and posts the **BBJ Monthly Environmental Monitoring Reports** on the website. For more information **submit an inquiry** to our borough-specific **Community Construction Liaison.** https://rikers.cityofnewyork.us/.

Oversight Team

Oversight for the environmental monitoring program is multi-tiered and includes checks and balances between several agencies and entities.

AGENCY OVERSIGHT

- NYC Environmental Protection — Air/Dust/Noise/ Water Monitoring
- NYC DDC — Construction Management
- NYSDEC — Contaminated Soil/ Water/Air
- NYC Buildings — Vibration Monitoring

Agencies provide regulatory guidance and approve the contractors' environmental plans at the start of the contract. They make regular inspections to ensure compliance throughout the duration of construction.

MANAGEMENT

AECOM-Hill JOINT VENTURE
Project and Construction Management (PMC)
Resident Engineering Inspection Services Team

DESIGN–BUILD TEAM

The design-build team is responsible for the safety of their workers and the community surrounding the project site. The PMC team will monitor the contractor's compliance and required mitigation measures.

ENVIRONMENTAL MONITORING

ENVIRONMENTAL SPECIALIST
Preferred Environmental Services

ENVIRONMENTAL CONSULTANT

The PMC's environmental specialist and the contractors' environmental consultants submit monitoring plans for approval at the start of the contract. They are responsible for monitoring particulate pollution and alerting the project team (City, PMC, and contractors) if particulate matter reaches the Action Level.

While the BBJ Team has been tasked to monitor Air Quality, Noise and Vibration around our construction activities, we do understand there are many other impacts affecting air quality in the City. Residents should follow all **Notify NYC** Advisories: https://a858-nycnotify.nyc.gov/

Air Quality Monitoring

Community health and safety are extremely important to the City of New York. The Borough-Based Jails (BBJ) project team is committed to ensuring there is limited impact on nearby air quality during our construction activities. The BBJ requires the Design Builders not just to comply but go above and beyond the required New York State and City requirements.

Air quality around the construction activities is being monitored.

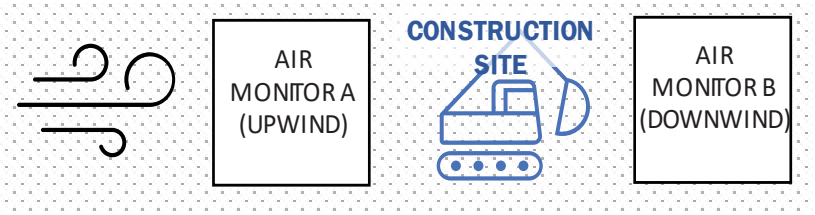
Monitoring machines are on site to measure particles from construction vehicle emissions and dust as well as site conditions such as wind speed and temperature. These machines are placed strategically along the edge of active construction activities. Some machines monitor existing conditions and others measure the potential increase of impact from construction. Through careful monitoring with real-time alerts, the team knows when additional measures are needed during construction to protect air quality for residents. If the construction is not meeting the requirements set by the oversight agencies, work may be halted, and an assessment will be made to protect residents.

WHAT IS BEING MEASURED

Particulate Matter (PM), or particle pollution, is a term for the tiny solid particles and liquid droplets found in the air. The Environmental Protection Agency has set for evaluating the particle pollution levels a 24-hour time weighted average (TWA.) The BBJ project is evaluating air quality at 15-min TWA intervals to monitor the project's effect on community air quality.

MEASURED SIZE:

PM 10 - Larger particles typically from dust.



Existing air flows → **Monitor A** measures existing particles → Air flows through site → **Monitor B** measures existing particles and any potential increase from construction or other activities

MONITOR A − MONITOR B = **NET PARTICULATE MATTER**

Action Levels required by NY State Department of Health (DOH) and Department of Environmental Conservation (DEC): If downwind PM-10 particulate levels are 100 micrograms per cubic meter (µg/m) greater than background (upwind perimeter) for the 15-minute period, dust suppression techniques shall be employed. If downwind PM-10 particulate levels are greater than 150 µg/m3 above the upwind level the work will require to stop the team will reassess dust control measures.

Department of Design and Construction

Borough-Based Jails
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Steps to control dust and limit emissions during construction.

To protect air quality, preventive measures during daily construction activities are being taken, and will be increased if monitoring machines indicate additional action is needed.

Measures to reduce construction vehicle pollution and emissions:

- Use Ultra-Low Sulfur Diesel fuel
- Minimize use of diesel engines, use the best available technology for non-road diesel engines, and restrict truck idling time

Measures to reduce and control dust:

- Use water spray for roads, trucks, truck wheels, excavation areas, and stockpiles
- Cover stockpiles with anchored tarps
- Use extra care, including more frequent application of these measures, during dry periods and high wind periods
- Spray exposed excavated surfaces with water to suppress dust, at a minimum.
- Cover and secure loads for all trucks hauling loose material including sand and dirt.

Noise Monitoring

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Community health and safety are extremely important to the City of New York. The Borough-Based Jails (BBJ) project team is ensuring that noise from construction will be intermittent and of limited duration, and total noise levels will not rise to the level of a **significant adverse noise impact*.** The BBJ requires the Design Builders not just to comply but go above and beyond the required New York State and City requirements.

Noise around the construction activities is being monitored.

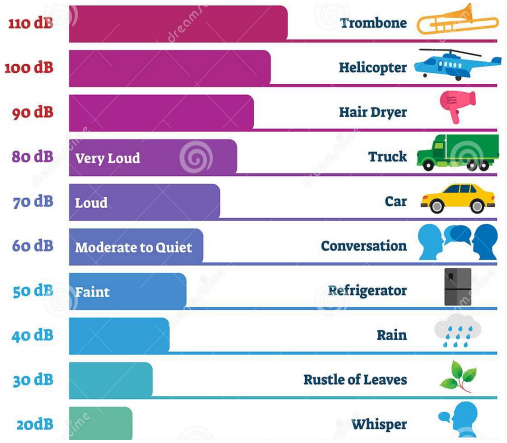
Sound level meters are located on-site to monitor and ensure noise levels comply with New York City's noise codes (Local Law 113.) During construction maximum noise level cannot exceed the following:

- **7:00 AM to 6:00 PM weekday:** 80 A-weighted decibels (dBA) as measured 50 or more feet from the source or sources at a point outside the property line or on a public right-of-way.
- **6:00 PM to 7:00 AM and weekend, if a permit is obtained:** 70 dBA as measured 50 or more feet from the source or sources at a point outside the property line or on public right-of-way, or an increase of 7 dBA above ambient (baseline), whichever is higher.
- **During construction and/or container and material handling**: 10 dBA above the ambient level as measured at any point within a receiving property or as measured at 15 feet or more from the source on a public right-of-way.

WHAT IS BEING MEASURED

Decibels (dBA) level

Adjusted measurement of noise that considers the sensitivity of the human ear to the various sound frequencies that we can hear. A normal conversation corresponds to 60 dB, a heavy traffic to 85 dB, and a concert to 120 dB.



Decibel Scale


Sound level meter installed outside

Department of Design and Construction

Steps to monitor noise during construction.

To ensure noise levels are respected, preventive measures are being taken during daily construction activities, and will be increased if monitoring devices indicate additional action is needed.

Measures to reduce and control noise:

- Use mufflers on construction equipment (dump trucks, concrete mixers, excavation equipment, generators, trucks removing soil, etc.)
- Install noise monitoring stations distributed across the site.
- Perform initial background readings of all noise stations one week before construction activity in the area begins.
- Use absorbing materials placed around areas of noise generation (i.e., installing mass-loading vinyl or noise curtains.)
- Minimize truck idling or staging trucks within the site.
- Lowering debris into trucks in lieu of dropping.
- Utilize densifying attachments rather than impact hammers for slab dismantle.

**DEP defines significant adverse noise impact as the increase of 15 dBA or more for prolonged duration of 12 consecutive months or more or increase of 20 dBA or more for prolonged duration of 3 consecutive months or more.*

Vibration Monitoring

Community health and safety are extremely important to the City of New York. The Borough-Based Jails (BBJ) project team requires design-builders to implement a Vibration Monitoring Plan to monitor and minimize vibration from construction related activities not just to comply but go above and beyond the required New York State and City requirements.

Vibration around our construction activities is being monitored.

The project does not have the potential to result in vibration at a level that could result in architectural or structural damage to adjacent buildings. The design-build team will maintain real-time vibration monitoring equipment that will be monitored and interpreted by the vibration consulting firm's personnel and monthly reports will be provided to the public. These monitoring devices will be placed strategically along the edge of active construction activities and monitor all structures within 90 feet of the Project Site specifically for heavy equipment operations such as rock excavation, pile/lagging installation, etc.

WHAT IS BEING MEASURED

Inches per second (In/sec)
Velocity of vibration is measured in peak units such as inches per second (ips), describing how fast a heavy spot moves through a cycle.

Baseline/ Background level will be measured to provide reference for evaluating impacts

Vibration monitoring installed in basement


Vibration monitoring installed outside on sidewalk

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Steps to monitor vibration during construction.

To ensure vibration levels are not impactful, preventive measures are being taken during daily construction activities, and will increase these measures if monitoring devices indicate additional action is needed.

Measures to reduce vibration:

- Cushioning items during dismantling
- Using appropriately sized equipment
- Lowering debris to the extent possible with a crane
- Removing debris in large pieces to another site to process rather than processing on-site
- Utilizing densifying attachments rather than impact hammers for slab dismantle
- Using smaller hand-held dismantle equipment in place of larger dismantle machines

The NYC Department of Buildings (DOB) defines vibration level limits thresholds for historical structures at 0.5 in/sec exceedance level. The BBJ program will set a warning level at 0.3 in/sec or more stringent for historical structures. For non-historical structures, the exceedance level is defined at 1 in/sec and warning level 0.5 in/sec.

Vibrations do not necessarily translate to structural damage. While you may feel vibrations, it does not mean there is damage or issues. The average person feels a vibration at around 0.1 millimeters/second which is fairly low. Vibrations that could cause structural damage need to have a substantially higher level.