

Brooklyn Battery Tunnel Abatement Project Monitoring, Environmental Consultant

For the Triborough Bridge and Tunnel Authority (TBTA), GRB was responsible for environmental decontamination and abatement construction management and inspection services at the Brooklyn Battery Park Tunnel in Brooklyn, New York. GRB was a subcontractor to Jacobs. The Brooklyn Battery Tunnel is a two tube tunnel and each tube is named from the predominant direction that traffic originates from, i.e.-the East Tube, and the West Tube. The West Tube is divided into five fresh air ventilation zones (WB-1 *Vertical*, WB-1, WB-3, WB-4, WB-5 going from east to west), and four exhaust ventilation zones (WE-2, WE-3, WE-4, WE-5 going from east to west, with WE-5 comprised of 2 physical zones divided at the Manhattan Exhaust bldg by a bulkhead). The East Tube is divided into four fresh air ventilation zones (EB-1, EB-2, EB-3, WB-4, going from east to west), and six exhaust ventilation zones (EE-1 *Vertical*, EE-1, EE-2, EE-3, EE-4, EE-5 going from east to west).



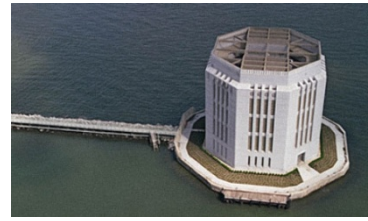
GRB drafted a Quality Control Plan prior to commencement of project. QC Plan served as work conduct guide for GRB oversight personnel and abatement subcontractor personnel. GRB determined abatement work schedules, safety details and report submittal procedures. GRB created progress drawings using AutoCAD. Drawings were used as discussion tools during meetings with the TBTA.

Specific areas that required decontamination under contract Project Number: BB-28 / BB-81, Contract Number: PSC-01-2643 “Rehabilitation of Tunnel Walls, Roadway and Drainage System / Rebuild Tunnel Water System at the Brooklyn Battery Tunnel” included:

- West and east tunnel fresh air and exhaust plenums and their associated vertical shafts up to the underside of damper doors (see Table in part 1.01 G);
- Forty (40) high tension tunnel niche enclosures along walls of tunnel roadway approximately 4’x5’ in size (4 are associated with construction shaft rooms);
- Seventy five (75) splice chambers in catwalks of tunnel;
- Three hundred forty seven (347) Fire Extinguisher Niches of varying sizes;
- One tunnel sump pit room, West Tube @ STA 27+25 (486 SF surface area approx.);
- Construction shaft room, West Tube @ STA 29+00 (3412 SF surface area approx.);
- Construction shaft room, West Tube @ STA 106+00 (3583 SF surface area approx.);
- Two construction shaft rooms, East Tube @ 28+90 -both sides of roadway (approx 7800 SF surface area combined, rooms connect to one another over the tunnel tube); and
 - One construction shaft room, East Tube @ 105+80 (approx 4019 SF surface area approx.).

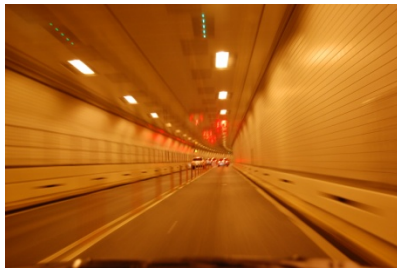
Brooklyn Battery Tunnel Abatement Project Monitoring, Environmental Consultant

GRB was responsible for the dust decontamination oversight associated with 9/11 events in New York City, asbestos abatement, and lead paint abatement supervision for the project. GRB provided all labor, equipment, testing and training necessary to support the project. GRB's on-site personnel conducted assessments of visible emissions and releases, including lead paint abatement, regulated area monitoring, monitoring project clean-up, and oversee the storage, removal, and disposal of waste as required by the client. GRB was responsible for monitoring, tracking, overseeing, and verifying that the services are provided in accordance with the construction contract documents, and in compliance with Federal, state, and local laws, codes, rules and regulations governing such activities. Further, GRB was responsible for reviewing and commenting on all environmental plans and procedures developed by contractor.



GRB also provided Project Monitoring services for asbestos and lead paint abatement activities. ACM abatement activities focused on the following:

- Abatement of fire extinguisher, fire valve, gate valve and drain valve niches within the West Tube
- Abatement of fire valve, gate valve and drain valve niches within the East Tube
- Abatement of fire valves, flange gaskets and fire piping in the Brooklyn Vent Building
- Abatement of fire valves, flange gaskets and fire piping in the Governor's Island Vent Building
- Abatement of fire valves, flange gaskets and fire piping in the Manhattan Vent Building



During the abatement process, asbestos containing materials were abated from 131 various types of niches and 2,139 bags of asbestos contaminated waste were collected. Safeway Environmental transported asbestos containing waste material to an approved asbestos waste container that was lined in polyethylene sheeting and appropriately placarded.

Lead based paint abatement activities included the following:

- Removal of lead based paint from approximately 18,280 linear feet of roadway curbs within the West Tube;
- Removal of lead based paint from approximately 18,200 linear feet of roadway curbs within the East Tube;
- Removal of approximately 103 linear feet of non asbestos insulation coated with lead based paint from the Brooklyn Vent Building;
- Removal of approximately 120 linear feet of non asbestos insulation coated with lead based paint from five manholes and the Pump Room within the Brooklyn Plaza;

Brooklyn Battery Tunnel Abatement Project Monitoring, Environmental Consultant

- Removal of approximately 150 linear feet of non asbestos insulation coated with lead based paint from the Governor's Island Vent Building.

All work was performed during tunnel operations. GRB's oversight insured that contractor work was performed in compliance with regulatory and contract requirements while ensuring the safety of motorists. Over 1 million square feet of surfaces were decontaminated.