

Transportation Research Board
Annual Meeting, January 2009



Bruce Springsteen, Zakim Bridge Dedication, Oct02



Sustainable Precedents for Construction Mitigation

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Senior Acoustical Engineer

Parsons Brinckerhoff

Sustainable Mitigation

Based on lessons learned while managing the Central Artery/Tunnel Project in Boston





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"IA3"	

Sustainable Mitigation

Contract Specifications from CA/T Project:

Proactive Avoidance & Reactive Enforcement

- Noise Control Spec. 721.560
- Dust Control Spec. 721.561
- Odor Control Spec. 721.562
- Water Quality Spec. 140.140
- Erosion Control Spec. 140.141
- Rodent Control Spec. 119.010

Noise Control



Federal Highway Administration

Roadway Construction Noise Model (RCNM)

Highway Construction Noise Handbook (Released 2006)



Center for Environmental Excellence by AASHTO

One Stop Source of Environmental Information for Transportation Professionals



New York City Department of Environmental Protection

City-wide Construction Noise Rules (Effective 1 July 2007)

Noise Control Measures

1. Enforceable Noise Control Plans
2. Modern equipment, well maintained
3. Quieter alternative equipment/methods
4. Additional exhaust mufflers
5. Operations and time restrictions
6. No pile driving and hoe ramming at night
7. Noise barriers, curtains, enclosures
8. Window soundproofing program
9. Quieter-type or prohibited backup alarms
10. Monitor community and equipment noise levels

14881



BATTERY

DC MOTOR

ARDUINO UNO R3

ULTRASONIC SENSOR

CAMERA















STAY OFF
NO MEN
ON THIS

NO
TODAY
NO
NO

5/24/90







Air Quality & Dust Control



U.S. Department of Transportation
**Federal Highway
Administration**

Federal Highway Administration

Diesel Retrofit Program



US Environmental Protection Agency

Diesel Retrofit Program



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AQ & Dust Control Measures

1. PM2.5 oxidation catalytic converter retrofit
2. Alternative biodiesel fuels
3. Turn off engines not in use, or use staging areas
4. Wet dust suppression, with binding agents
5. Calcium chloride when freezing conditions exist
6. Vacuum-powered street sweepers
7. Wind screen fabric or barriers around site perimeter
8. Wheel-wash stations or crushed stone
9. Covering active stockpiles with plastic tarps
10. Hydro-seeding or soil stabilizers on stockpiles
11. Covering dump trucks during material transport
12. Monitor community air quality and dust levels



CAT^{REGD}

TH83



**THIS MACHINE
IS EQUIPPED WITH
AN AIR POLLUTION
CONTROL DEVICE**



NOTICE

IMPROPER LIFTING OR
CAN ALLOW LOAD TO
CAUSE INJURY AND DEATH
1. READ AND UNDERSTAND
APPLY TO MACHINE'S ROPS
2. WEAR SEATBELT AT ALL
3. NEVER LEAVE MACHINE
4. NEVER PROPERLY LABELLED
5. NEVER OPERATE MACHINE
6. NEVER OPERATE MACHINE
7. NEVER OPERATE MACHINE
8. NEVER OPERATE MACHINE
9. NEVER OPERATE MACHINE
10. NEVER OPERATE MACHINE







E288















Street
Cleaning

2:01am-7:00am

Tow Zone

TOW ZONE



Water Quality



US Environmental Protection Agency

First NPDES Permit for Construction
National Pollution Discharge Elimination System Permit

Helped establish Tier 1 thru Tier 4 permits



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Water Quality Measures

1. Wheel-wash stations with coagulants
2. Perimeter controls, silt fences, hay bales
3. Catch basins and sedimentation tanks
4. Dewatering sump pumps
5. Outfall plume containment
6. pH adjustment for cementatous water
7. CO₂ water injections
8. Artificial reefs, fish startle system, sun light
9. Discharge water monitoring for NPDES permit

















800-250-3024
10000 10th St
800-727-9478

**CARBON DIOXIDE
LIQUEFIED**

Carbonic
SYSTEMS
CORPORATION





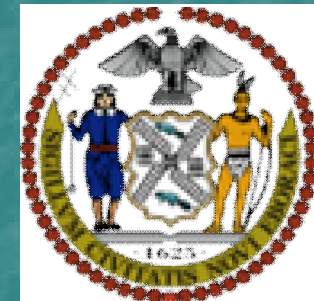
Rodent Control



US Environmental Protection Agency
Environmental Excellence Specs



City of Boston Inspectional Services



City of New York



China, Argentina, other nations

Rodent Control Measures

1. Site sanitation requirements
2. Rodent-proof trash containers
3. Poison and sterilization baiting
4. Traps, traps, traps
5. Extermination by permit











Sustainable Mitigation



So, like Bruce, some good ideas “sustain” the test of time.
Construction mitigation can, and should, always be used.

See you *“Further on up the road”*. 📢