

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

**Gowanus Canal Turning Basin 4 Dredging and Capping Pilot Study
Brooklyn, New York**

Project number: 283126

Period: June 18 to 22, 2018

Date of Report: July 2, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust



On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Phase II Dredging:

- Approximately 774 cubic yards of native alluvial sediment dredged:
 - Remove sediment within targeted native alluvial removal area #4 slots 2, 3, and 4 to design grade and backfill with low permeability following acceptance of hydrographic and pole surveys

Water Treatment and Monitoring

- Discharged 48,625 gallons of treated decant water on 06/21/18.
- No exceedances of continuous monitoring.

Turbidity Monitoring

- Turbid water not observed migrating from the 4th Street Turning Basin.

Debris Screening Activities

- Level 2 debris screening performed by AHRS at Citizens Site.

Sediment Stabilization Activities

- Clean Earth Claremont stabilized 1,383 tons of dredged sediment by adding 8% Portland cement by weight.
- Stabilized material is segregated on-site pending waste characterization sampling results receipt and disposal facility acceptance.
- Approximately 136 tons of stabilized material were disposed off-site as daily cover. An approximate total of 13,153 tons of Phase I stabilized material has been shipped to Waste Management Fairless Hills.

Capping Activities

- Produce low permeability backfill.

Quality Assurance and Control – Geosyntec

- Water treatment system sampling performed on 06/21/18. Laboratory turnaround time is 10 business days.
- No exceedance of the turbidity trigger or action criteria.
- Measurements for 6/18/18:
 - Daily average for ambient buoy – 3.9 NTU
 - Daily average for sentinel buoy – 7.9 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 18.6 NTU at 1100.
- Measurements for 6/19/18:
 - Daily average for ambient buoy – 4.9 NTU
 - Daily average for sentinel buoy – 8.8 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 12.1 NTU at 0915.
- Measurements for 6/20/18:
 - Daily average for ambient buoy – 4.1 NTU
 - Daily average for sentinel buoy – 8.5 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 27.3 NTU at 0900.



- Measurements for 6/21/18:
 - Daily average for ambient buoy – 2.1 NTU
 - Daily average for sentinel buoy – 5.2 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 17.7 NTU at 1130.
- Measurements for 6/22/18:
 - Daily average for ambient buoy – 1.3 NTU
 - Daily average for sentinel buoy – 5.5 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 12.9 NTU at 1130.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM₁₀) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM₁₀ in µg/m³
 - Station 1 – 45 µg/m³ recorded on 06/18/18
 - Station 2 – 36 µg/m³ recorded on 06/18/18
 - Station 3 – 35 µg/m³ recorded on 06/19/18
 - Station 4 – 28 µg/m³ recorded on 06/18/18
 - Station 5 – 35 µg/m³ recorded on 06/20/18
 - Station 6 – 6 µg/m³ recorded on 06/19 and 06/21/18
 - Station 7 – <1 µg/m³ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 105 ppb recorded on 06/18 and 06/21/18
 - Station 2 – 28 ppb recorded on 06/19/18
 - Station 3 – 54 ppb recorded on 06/22/18
 - Station 4 – <1 ppb recorded throughout the week
 - Station 5 – 101 ppb recorded on 06/19/18
 - Station 6 – 22 ppb recorded on 06/19/18
 - Station 7 – <1 ppb recorded throughout the week
- All real-time readings of formaldehyde, hydrogen sulfide, or ammonia less than instrument reporting limit.
- 23-hour samples collected at ST-2 on 06/19 through 06/20 and ST-3 (collocated) on 06/20 through 06/21. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-1 on 05/22 through 05/23, ST-7 (collocated) on 05/21 through 05/22, ST-4 on 05/29 through 05/30, and ST-5 on 05/31 through 06/01 presented in weekly CAMP report.



Noise and Vibration Monitoring – Wilson Ihrig

- Operated and maintained two (2) noise monitors: NM-1 (north side of canal on Whole Foods promenade) and NM-2 (south side of canal on southeast corner of 386 3rd Avenue).
- No exceedance of the hourly Leq noise limit of 80 dBA.
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 70.4 dBA during 1000-1100 on 06/20/18
 - Southern monitor (NM-2) – 79 dBA during 1500-1600 on 06/21/18

Cultural Natural Resource Monitoring – Archeology and Historic Resource Services (AHRS)

- Perform Level 2 monitoring of native alluvium at Citizens Site. No potentially significant archaeological debris identified.

Two-Week Look Ahead:

Sevenson:

- Complete Phase I dredging as necessary based on evaluation of sampling conducted on 06/08.
- Continue and complete Phase II dredging and placement of backfilling.
- Screen native alluvium at Citizens Site prior to shipment to Clean Earth Claremont for stabilization or stabilization at Citizens Site prior to shipment to Waste Management Fairless Hills for beneficial reuse.
- Treatment and discharge of water decanted from dredged sediment.
- Produce low permeability backfill with mixing plant.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations. Along with weekly optical surveys conducted by subcontractor.
- Mobilize equipment and materials in preparation of capping activities.

Geosyntec – Perform construction quality assurance responsibilities, including collection of water samples from dredge water treatment system.

TRC CAMP Monitoring – Perform community air monitoring.

Wilson Ihrig – Perform noise monitoring,

AHRS:

- Review photographs and perform inspection of screened debris from Phase I and II dredging at Clean Earth Claremont and Citizens Site.
- Perform Level 2 monitoring of native alluvium at Citizens Site.

Key Milestones

- No key milestones during period.

Attachments:

1. Geosyntec In-Canal Water Quality Monitoring Weekly Data Summary
2. TRC Weekly CAMP Report
3. Wilson Ihrig Weekly Noise and Vibration Monitoring Report
4. AHRS Weekly Report
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during week)
6. Cumulative Dredged Material Chart



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 001	Date 06-18-2018
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Description
Setting up Ponar® sampler to try and verify unconsolidated layer.

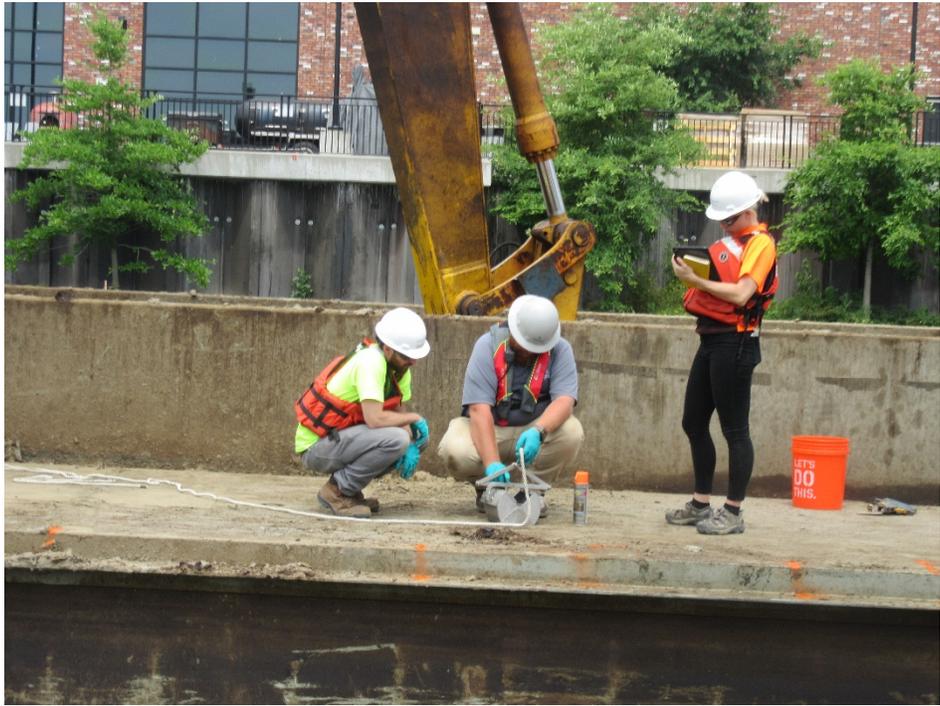


Photo No. 002	Date 06-18-2018
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Description
Barge moved out of the way for surveying.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 003	Date 06-19-2018
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Description
Excavating TNARA material from the north half of Area 4, slot #3.

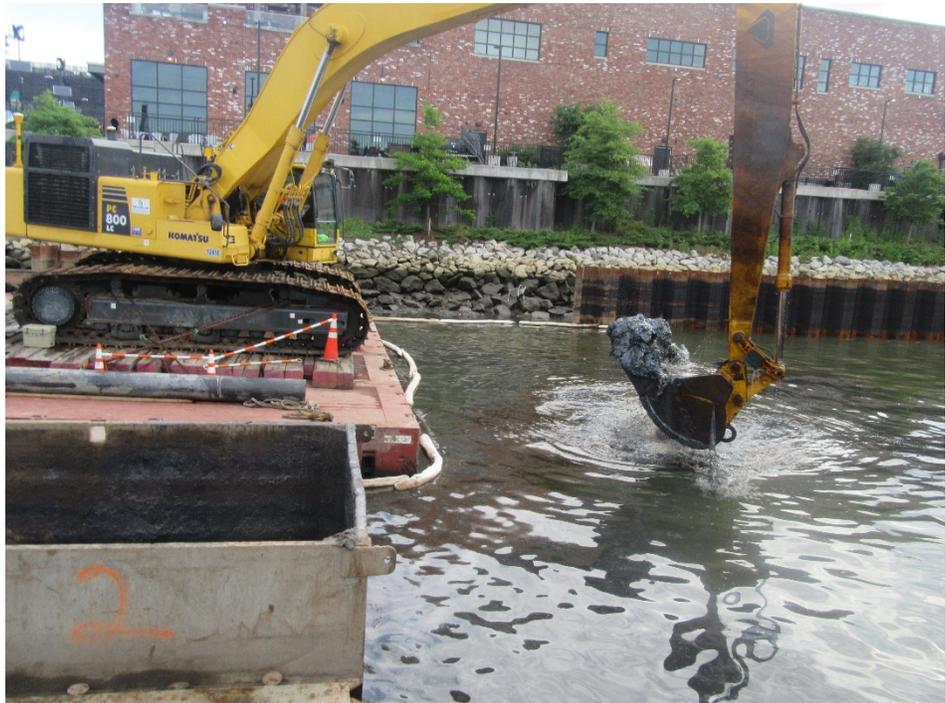


Photo No. 004	Date 06-19-2018
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Description
Surveying along rope guide for Area 4, slot #2 north side.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 005	Date 06-20-2018
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Description
Raising spuds to move excavator barge.



Photo No. 006	Date 06-20-2018
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Description
Lead line measurements in the webbing of the sheet pile wall.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 007	Date 06-21-2018
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Description
Screening of native alluvial material with AHRS oversight.



Photo No. 008	Date 06-21-2018
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Description
Rogers Surveying on-site to conduct independent hydrographic survey of backfill of slot #3 and excavation of slot #4.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 009	Date 06-22-2018
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Description
Placement of low permeability backfill in slot #4.



Photo No. 010	Date 06-22-2018
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Description
Staged hydraulic capping materials.



GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY



GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY Water Quality Monitoring Weekly Data Summary

Week of June 18th, 2018

Report Contents

- Scope of Monitoring
- Turbidity Buoy Data
- Handheld Measurements
- Summary of Visual Observations
 - Report of Exceedances

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

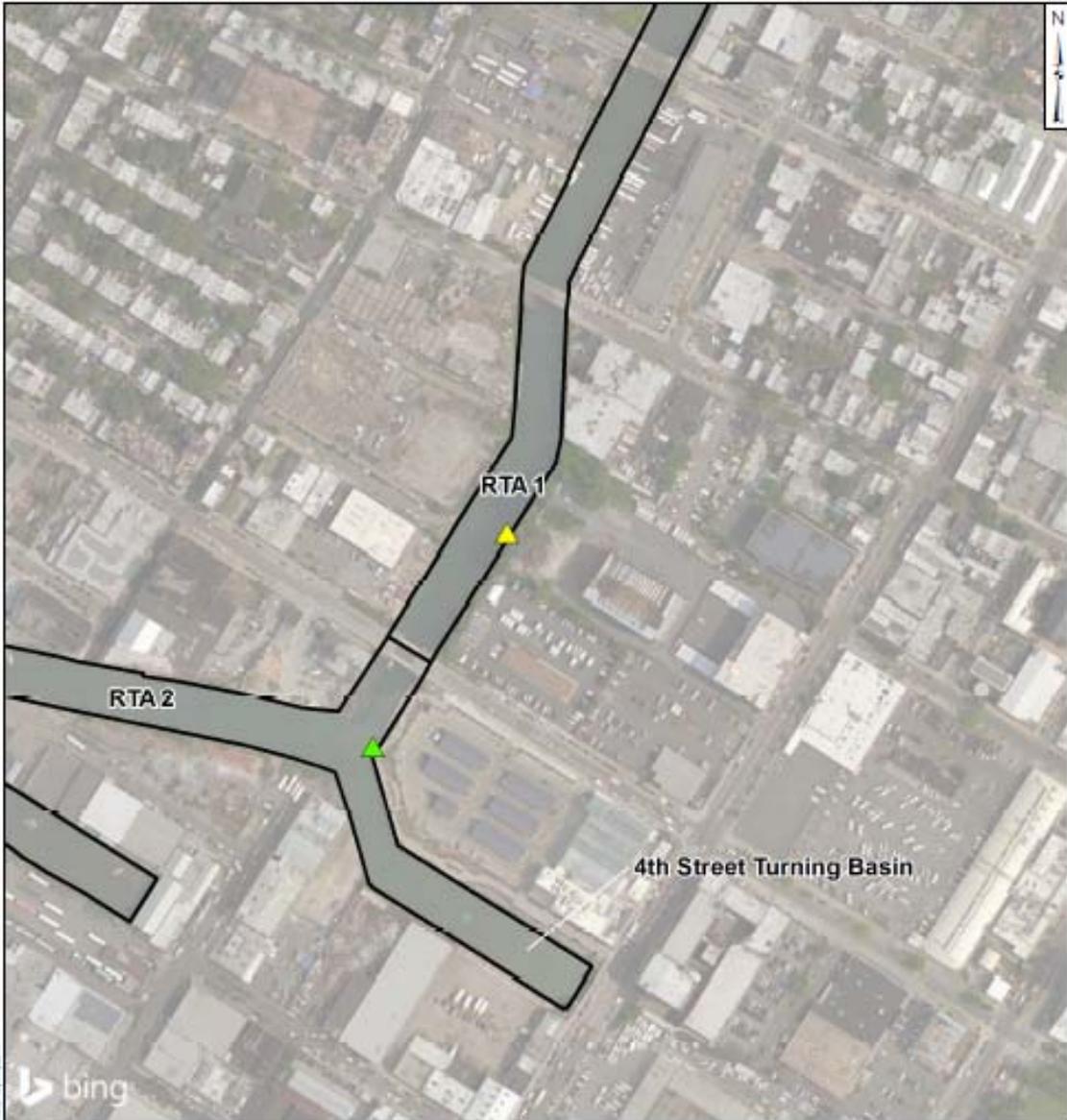
Beech and Bonaparte 
engineering p.c.

an affiliate of Geosyntec Consultants

7 Graphics Drive, Suite 106
Ewing, NJ 08628
Project Number HPH106A (52)

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of June 18th, 2018. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4th Street Turning Basin and is referred to as the sentinel buoy. A second turbidity buoy was deployed further upstream in RTA1 in order to monitor background turbidity unaffected by on-water construction activities. This turbidity buoy is referred to as the ambient buoy. A map indicating the approximate locations of the turbidity buoys is provided in Figure 1. Each turbidity buoy was equipped with a YSI 600 OMS water quality meter with optical turbidity sensor. The buoys were programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of June 18th. Average and maximum turbidity are also presented. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary.



Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal
Remedial Design
Group

Geosyntec
consultants

Beech and Bonaparte
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Figure

1

Ewing, NJ

October 2017

2.3 Wednesday, June 20th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
6/20/2018 7:00	1.8	3.1	Y	6/20/2018 12:15	4.4	8.3	Y
6/20/2018 7:15	1.1	4.0	Y	6/20/2018 12:30	2.8	6.7	Y
6/20/2018 7:30	2.3	3.0	Y	6/20/2018 12:45	4.2	5.4	Y
6/20/2018 7:45	2.1	9.7	Y	6/20/2018 13:00	2.2	4.5	Y
6/20/2018 8:00	2.4	5.2	Y	6/20/2018 13:15	1.8	5.0	Y
6/20/2018 8:15	3.3	5.6	Y	6/20/2018 13:30	1.6	5.7	Y
6/20/2018 8:30	3.1	6.6	Y	6/20/2018 13:45	1.5	3.3	Y
6/20/2018 8:45	4.3	14.9	Y	6/20/2018 14:00	0.7	2.9	Y
6/20/2018 9:00	7.4	34.7	Y	6/20/2018 14:15	0.3	3.3	Y
6/20/2018 9:15	6.0	28.6	Y	6/20/2018 14:30	0.6	4.5	Y
6/20/2018 9:30	5.0	11.4	Y	6/20/2018 14:45	0.4	8.7	Y
6/20/2018 9:45	3.6	26.3	Y	6/20/2018 15:00	0.4	7.7	Y
6/20/2018 10:00	5.6	19.6	Y	6/20/2018 15:15	0.1	3.8	Y
6/20/2018 10:15	54.6	9.4	N	6/20/2018 15:30	0.4	3.1	Y
6/20/2018 10:30	3.4	6.8	Y	6/20/2018 15:45	1.5	4.5	Y
6/20/2018 10:45	3.3	7.3	Y	6/20/2018 16:00	3.2	5.6	Y
6/20/2018 11:00	3.5	9.5	Y	6/20/2018 16:15	5.4	9.1	Y
6/20/2018 11:15	2.9	7.5	Y	6/20/2018 16:30	1.9	6.5	Y
6/20/2018 11:30	3.5	7.9	Y	6/20/2018 16:45	3.7	8.6	Y
6/20/2018 11:45	4.6	4.6	N	6/20/2018 17:00	3.3	8.7	Y
6/20/2018 12:00	3.2	7.2	Y				

Average	4.1	8.5	Y
Maximum	54.6	34.7	N

Notes:

No exceedances to rolling average threshold criteria during reporting period
 Values highlighted in green are greater than 20 NTU above the ambient buoy reading
 Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

3. HANDHELD MEASUREMENTS

No handheld measurements were collected for this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

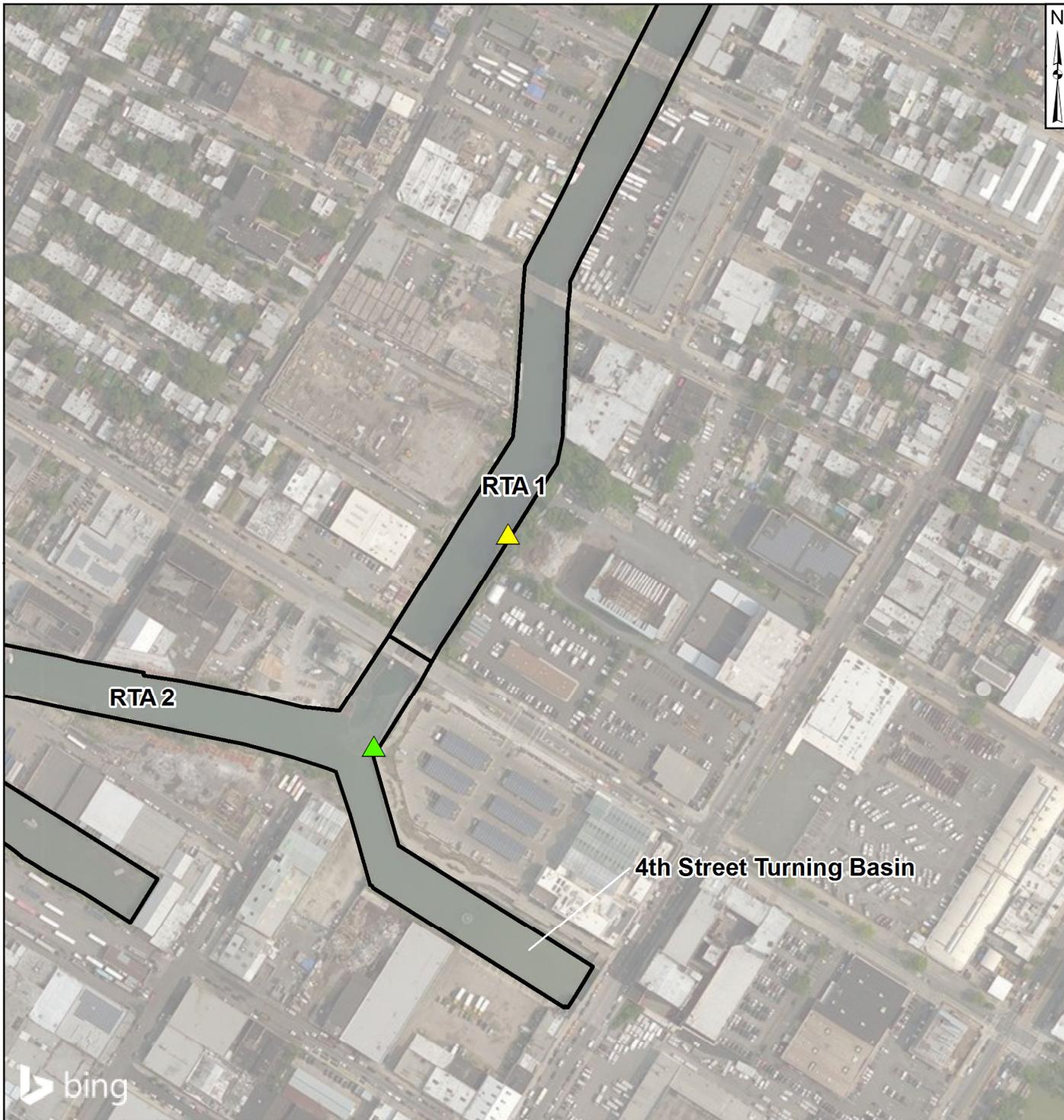
During the start of Phase II dredging with the excavator bucket an increased occurrence of sheen was observed. This sheen was localized in the area of dredging and did not migrate outside of the turning basin.

5. REPORT OF EXCEEDANCES

No exceedances of the water quality monitoring threshold criteria were met during the reporting period. Refer to the Water Quality Monitoring Plan for In-waterway Construction Activities (Geosyntec 2017) for further information regarding the Trigger and Action Criteria. Threshold criteria are summarized as follows:

- **Trigger criterion** – Any of the following:
 - The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements; or
 - Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities cannot be immediately excluded as the source.
- **Action criterion** – Any of the following:
 - The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements; or
 - Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities are readily identified as the source.

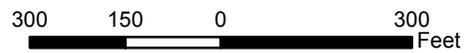
FIGURES



X:\03_GIS\mxd\Canal_Wide_Turbidity_Buoy_Locations.mxd; acarnes; 10/19/2017

Legend

- Ambient Buoy
- Sentinel Buoy
- RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group **Geosyntec** consultants **Beech and Bonaparte** engineering p.c.
an affiliate of Geosyntec Consultants

Figure

1

Ewing, NJ

October 2017

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)
10/3/2017 15:00	7.4	2.7	N	10/4/2017 4:30	4.8	7.1	Y	10/4/2017 18:00	6.9	2.7	N
10/3/2017 15:15	6.6	2.4	N	10/4/2017 4:45	5	6.3	Y	10/4/2017 18:15	7.2	2.7	N
10/3/2017 15:30	6.4	2.7	N	10/4/2017 5:00	4.7	6	Y	10/4/2017 18:30	7.8	3.4	N
10/3/2017 15:45	6.9	2	N	10/4/2017 5:15	5.1	6.4	Y	10/4/2017 18:45	8.2	4.4	N
10/3/2017 16:00	6.3	2.1	N	10/4/2017 5:30	5	7.3	Y	10/4/2017 19:00	7.5	3.1	N
10/3/2017 16:15	6.5	2.4	N	10/4/2017 5:45	5.4	7.8	Y	10/4/2017 19:15	8.7	3.6	N
10/3/2017 16:30	7.1	2.9	N	10/4/2017 6:00	5.5	8.3	Y	10/4/2017 19:30	8.7	4.5	N
10/3/2017 16:45	6.1	2.8	N	10/4/2017 6:15	5.2	9	Y	10/4/2017 19:45	9.4	4.1	N
10/3/2017 17:00	7	2.8	N	10/4/2017 6:30	5.8	7.2	Y	10/4/2017 20:00	8.4	4	N
10/3/2017 17:15	7	4.4	N	10/4/2017 6:45	5.4	8.8	Y	10/4/2017 20:15	8.2	4	N
10/3/2017 17:30	7	4.7	N	10/4/2017 7:00	5.5	8	Y	10/4/2017 20:30	9	3.6	N
10/3/2017 17:45	6.3	4	N	10/4/2017 7:15	5.6	7.5	Y	10/4/2017 20:45	8.4	3.5	N
10/3/2017 18:00	6.5	6.9	Y	10/4/2017 7:30	6.9	7.2	Y	10/4/2017 21:00	9.5	4.7	N
10/3/2017 18:15	7.8	6.7	Y	10/4/2017 7:45	6.8	6.1	N	10/4/2017 21:15	10.2	3.9	N
10/3/2017 18:30	7.9	6.5	N	10/4/2017 8:00	6.7	7.4	Y	10/4/2017 21:30	9.5	3.5	N
10/3/2017 18:45	8.5	5.9	N	10/4/2017 8:15	7.3	6.1	N	10/4/2017 21:45	8.9	3.6	N
10/3/2017 19:00	7.9	6	N	10/4/2017 8:30	7.2	4.6	N	10/4/2017 22:00	8.6	2.9	N
10/3/2017 19:15	7.4	6.3	N	10/4/2017 8:45	6.6	9	Y	10/4/2017 22:15	8.7	3.6	N
10/3/2017 19:30	7.4	4.3	N	10/4/2017 9:00	9.2	14.1	Y	10/4/2017 22:30	8.4	6.3	N
10/3/2017 19:45	8.3	4.6	N	10/4/2017 9:15	7.9	4.8	N	10/4/2017 22:45	7.3	3.3	N
10/3/2017 20:00	8.9	5.2	N	10/4/2017 9:30	9.3	4.6	N	10/4/2017 23:00	7.4	3.8	N
10/3/2017 20:15	8.6	4.5	N	10/4/2017 9:45	7.6	5.1	N	10/4/2017 23:15	7.1	4.5	N
10/3/2017 20:30	8	4.9	N	10/4/2017 10:00	8.1	3.9	N	10/4/2017 23:30	7	3.8	N
10/3/2017 20:45	10.6	4.3	N	10/4/2017 10:15	7.8	3.1	N	10/4/2017 23:45	8.3	5.3	N
10/3/2017 21:00	11.1	4.6	N	10/4/2017 10:30	7.3	4.5	N	10/5/2017 0:00	7.7	6.2	N
10/3/2017 21:15	9.8	4.7	N	10/4/2017 10:45	7.5	3.9	N	10/5/2017 0:15	7.8	5.1	N
10/3/2017 21:30	8.8	4.6	N	10/4/2017 11:00	7.6	9	Y	10/5/2017 0:30	7.2	5.7	N
10/3/2017 21:45	9	4.7	N	10/4/2017 11:15	6.5	16.7	Y	10/5/2017 0:45	7	5.4	N
10/3/2017 22:00	8.3	4.8	N	10/4/2017 11:30	7.4	6	N	10/5/2017 1:00	7.5	4.9	N
10/3/2017 22:15	7.3	6.1	N	10/4/2017 11:45	6.8	5.3	N	10/5/2017 1:15	7	8.2	Y
10/3/2017 22:30	7	4.7	N	10/4/2017 12:00	7.7	5.1	N	10/5/2017 1:30	8.1	4.9	N
10/3/2017 22:45	6.6	5.3	N	10/4/2017 12:15	6.6	6.1	N	10/5/2017 1:45	9.1	6.5	N
10/3/2017 23:00	7.1	6.1	N	10/4/2017 12:30	7.6	4	N	10/5/2017 2:00	9.2	5.2	N
10/3/2017 23:15	6.5	6	N	10/4/2017 12:45	7.7	3.9	N	10/5/2017 2:15	8.5	3.7	N
10/3/2017 23:30	6.6	6.9	Y	10/4/2017 13:00	8.3	4.8	N	10/5/2017 2:30	10.2	5.2	N
10/3/2017 23:45	7.2	5.2	N	10/4/2017 13:15	8.5	3.9	N	10/5/2017 2:45	10.1	4.2	N
10/4/2017 0:00	6.8	6.3	N	10/4/2017 13:30	9.2	5.5	N	10/5/2017 3:00	10.3	4.9	N
10/4/2017 0:15	7.2	5.6	N	10/4/2017 13:45	9.4	4.5	N	10/5/2017 3:15	9	6.3	N
10/4/2017 0:30	7.4	6.4	N	10/4/2017 14:00	11.1	3.1	N	10/5/2017 3:30	9.2	4.5	N
10/4/2017 0:45	7.1	5	N	10/4/2017 14:15	10	2.5	N	10/5/2017 3:45	8.4	4.1	N
10/4/2017 1:00	7.1	4.3	N	10/4/2017 14:30	9.8	2	N	10/5/2017 4:00	7.4	4.4	N
10/4/2017 1:15	8.3	4.6	N	10/4/2017 14:45	9.7	2.1	N	10/5/2017 4:15	7.3	4.4	N
10/4/2017 1:30	9	5.1	N	10/4/2017 15:00	9.3	2.4	N	10/5/2017 4:30	6.4	4.6	N
10/4/2017 1:45	7.9	4.5	N	10/4/2017 15:15	8.5	2.1	N	10/5/2017 4:45	6.2	5.1	N
10/4/2017 2:00	9.1	4	N	10/4/2017 15:30	8.5	1.8	N	10/5/2017 5:00	5.3	5.2	N
10/4/2017 2:15	7	5.3	N	10/4/2017 15:45	7.2	1.8	N	10/5/2017 5:15	5.3	5.3	N
10/4/2017 2:30	7.2	5.5	N	10/4/2017 16:00	7.3	1.6	N	10/5/2017 5:30	4.8	5	Y
10/4/2017 2:45	6.6	4.8	N	10/4/2017 16:15	6.4	1.8	N	10/5/2017 5:45	5.7	5	N
10/4/2017 3:00	6.6	5.7	N	10/4/2017 16:30	7	1.6	N	10/5/2017 6:00	5.6	4.8	N
10/4/2017 3:15	6.2	5.1	N	10/4/2017 16:45	7.5	2.6	N	10/5/2017 6:15	5.4	4.9	N
10/4/2017 3:30	5.9	4.7	N	10/4/2017 17:00	6.4	2.7	N	10/5/2017 6:30	6.1	5.7	N
10/4/2017 3:45	5.5	5.9	N	10/4/2017 17:15	6.5	2	N	10/5/2017 6:45	5.9	6.4	Y
10/4/2017 4:00	4.9	6.4	Y	10/4/2017 17:30	6.7	2.3	N	10/5/2017 7:00	6.1	7.8	Y
10/4/2017 4:15	5.1	7	Y	10/4/2017 17:45	6.6	2.1	N				
Average	7.5	6.0	N								
Maximum	11.1	16.7	Y								

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT





**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Weekly Report
(TRC Project No.274286-0000-00000)**

**Community Air Monitoring Project
37th Weekly Monitoring Period
Summary Report:**

June 18th, through June 22nd, 2018

Report Contents

- Executive Summary
- Daily Data Summary Report – PM₁₀/TVOC
 - Daily Meteorological Summary Report
 - Periodic Monitoring Results
- Volatile Organic Compounds (USEPA Method TO-15)

Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, New York

Executive Summary – Week 37 Monitoring Period June 18th through June 22nd, 2018

The following report summarizes site air monitoring activities for the Week 37 monitoring period from June 18th through June 22nd, 2018. The start and stop times associated with each daily monitoring period are listed on the respective daily reports.

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4th St Turning Basin Area using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 37 monitoring period there were no PM₁₀ or TVOC exceedances of the action level of 150 ug/m³ or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM₁₀) daily averages and maximums. Figure 3 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 37 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 37 monitoring period of June 18th through June 22nd, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 2 and 3. The ST-2 sample was collected on June 19th, through June 20th, 2018. A pair of co-located samples (ST-3A and ST-3B) was collected at Station 3 on June 20th, through June 21st, 2018. Both samples were collected over a 23-hour period and shipped to Con-Test Analytical Laboratory for analyses. The results of the summa canister sampling are pending lab analyses.

Table 2 presents the analytical results for 23-hour samples collected at Stations 1 and 7 during Week 33. The ST-1 sample was collected on May 22nd through 23rd, 2018. Co-located samples (ST-7A and ST-7B) were collected at Station 7 on May 21st through 22nd, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Table 3 presents the analytical results for 23-hour samples collected at Station 4 and 5 during Week 34. The ST-4 sample was collected on May 29th through 30th, 2018 and The ST-5 sample was collected on May 31st through June 1st, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Site activities which were conducted at the Citizen Property on June 18th through June 22nd, 2018 included the following:

- Material and equipment deliveries on Citizen Property
- General vehicular traffic site-wide throughout the monitoring period
- Maintenance of the barges and equipment
- De-watering of dredging sediment
- Transfer dredged material to larger scow for shipment to Clean Earth Claremont
- Produce low permeability backfill by mixing sand and bentonite

Site activities which were conducted at the 11th St Turning Basin Area of the Canal on June 18th through June 22nd, 2018 include the following:

- Approximately 774 cubic yards of native alluvial sediment dredged
- Remove material in targeted native alluvial removal area #4 slots 2, 3, and 4
- Place low permeability backfill following hydrographic and pole surveys in area #4 slots 2, 3, and 4

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
06/18/2018 06:30 AM - 06/18/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	105	ppb	Max.	45	ug/m ³
Avg.	52	ppb	Avg.	13	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	6	ppb	Max.	36	ug/m ³
Avg.	1	ppb	Avg.	14	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	27	ug/m ³
Avg.	<1	ppb	Avg.	18	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	28	ug/m ³
Avg.	<1	ppb	Avg.	15	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	52	ppb	Max.	17	ug/m ³
Avg.	31	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
06/19/2018 00:00 AM - 06/19/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	104	ppb	Max.	20	ug/m ³
Avg.	40	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	28	ppb	Max.	19	ug/m ³
Avg.	2	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	35	ug/m ³
Avg.	<1	ppb	Avg.	14	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	19	ug/m ³
Avg.	<1	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	101	ppb	Max.	21	ug/m ³
Avg.	42	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	22	ppb	Max.	6	ug/m ³
Avg.	8	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
6/20/2018 00:00 AM - 06/20/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	100	ppb	Max.	12	ug/m ³
Avg.	30	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	25	ppb	Max.	12	ug/m ³
Avg.	6	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	15	ug/m ³
Avg.	<1	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	11	ug/m ³
Avg.	<1	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	35	ppb	Max.	35	ug/m ³
Avg.	20	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	16	ppb	Max.	6	ug/m ³
Avg.	7	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
06/21/2018 00:00 AM - 06/21/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	105	ppb	Max.	12	ug/m ³
Avg.	39	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	25	ppb	Max.	15	ug/m ³
Avg.	4	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	51	ppb	Max.	22	ug/m ³
Avg.	8	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	14	ug/m ³
Avg.	<1	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	90	ppb	Max.	14	ug/m ³
Avg.	25	ppb	Avg.	3	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
06/22/2018 00:00 AM - 06/22/2018 16:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	55	ppb	Max.	11	ug/m ³
Avg.	30	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	22	ppb	Max.	16	ug/m ³
Avg.	<1	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	54	ppb	Max.	27	ug/m ³
Avg.	14	ppb	Avg.	14	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	16	ug/m ³
Avg.	<1	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	79	ppb	Max.	12	ug/m ³
Avg.	35	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 37

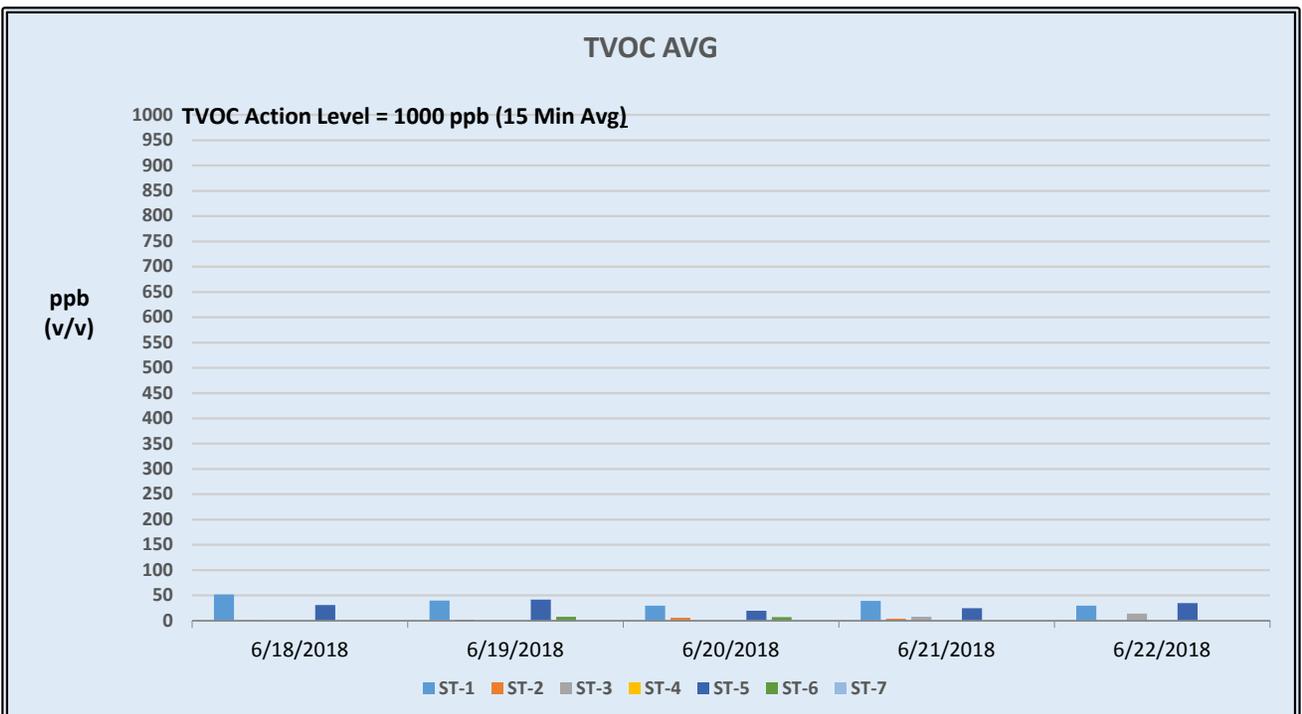
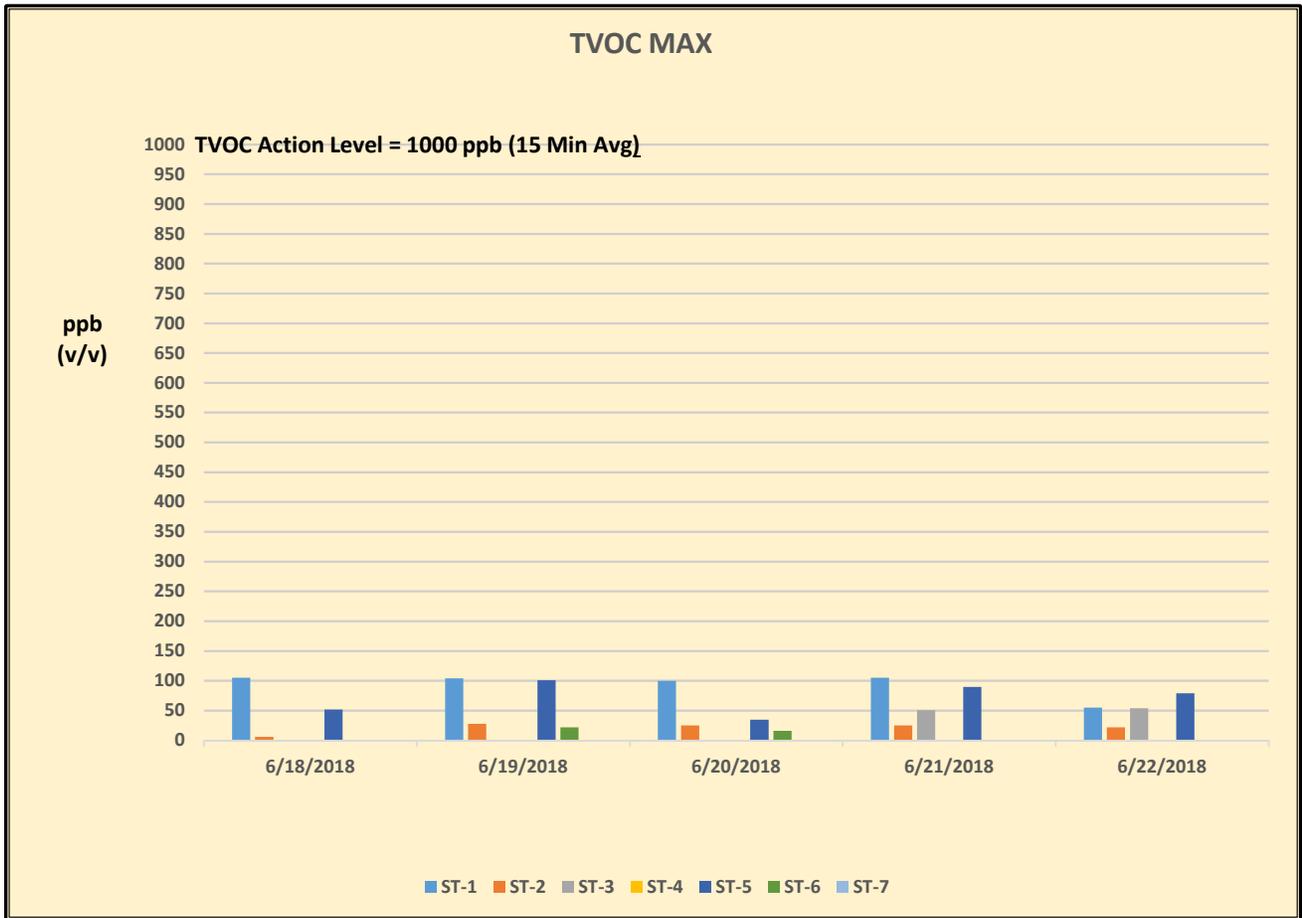
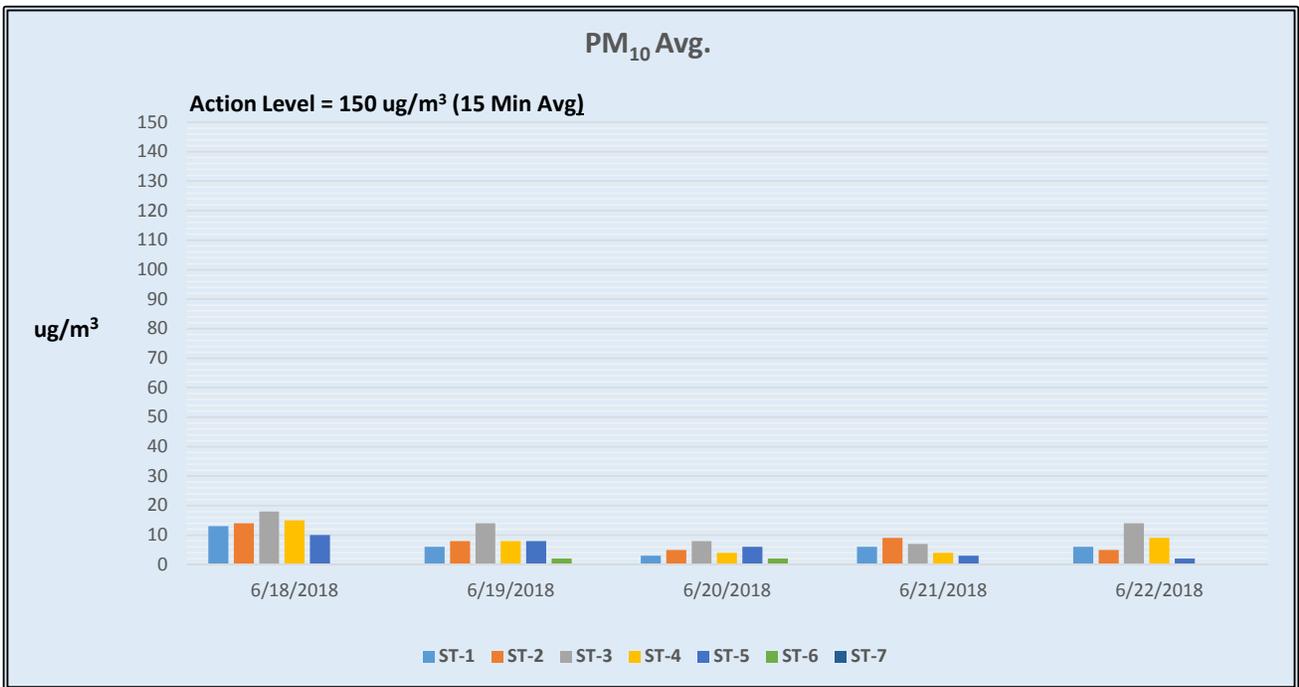
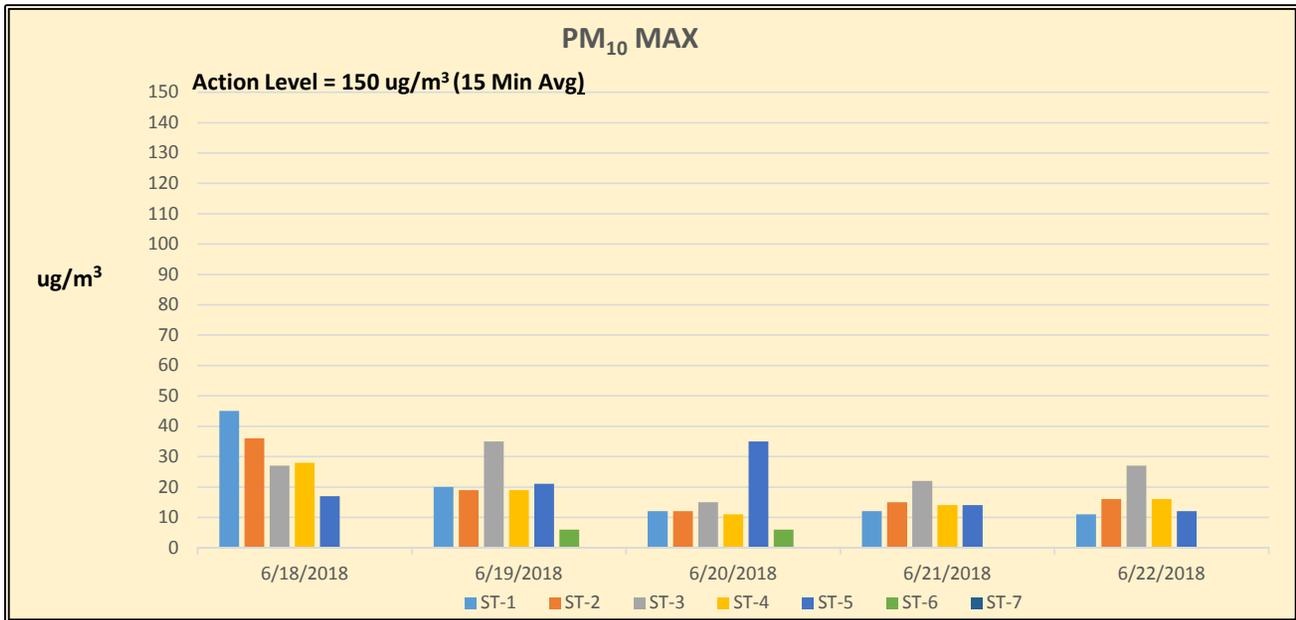


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week 37



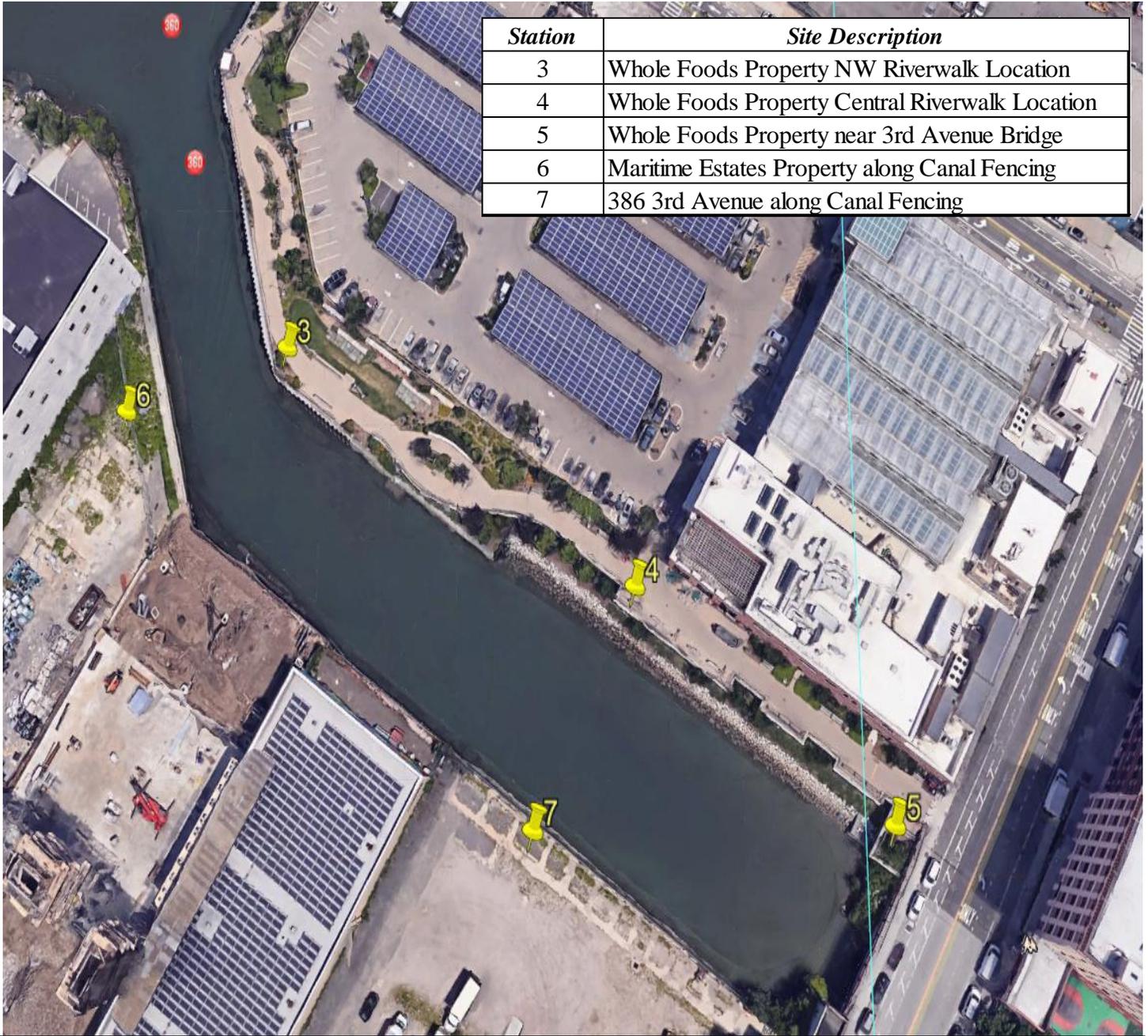


FIGURE 3
Gowanus Canal Superfund Site-TB4
Dredging and Capping Pilot Program

Table 1

Week 37

Summary of Additional Periodic (Daily) Monitoring Data

June 18 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	9:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	9:05	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	9:25	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-4	9:30	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-5	9:40	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-6	9:55	<50	<3	<1.0
	14:55	<50	<3	<1.0
ST-7	10:15	<50	<3	<1.0
	15:05	<50	<3	<1.0
June 19 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	10:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	10:05	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-3	10:15	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	10:20	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	10:25	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-6	10:35	<50	<3	<1.0
	15:50	<50	<3	<1.0
ST-7	10:50	<50	<3	<1.0
	16:20	<50	<3	<1.0

Table 1

Week 37

Summary of Additional Periodic (Daily) Monitoring Data

June 20 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	7:50	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-2	7:55	<50	<3	<1.0
	13:35	<50	<3	<1.0
ST-3	8:05	<50	<3	<1.0
	13:50	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	13:55	<50	<3	<1.0
ST-5	8:15	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-6	8:25	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-7	8:40	<50	<3	<1.0
	14:45	<50	<3	<1.0
June 21 st , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	9:00	<50	<3	<1.0
	15:05	<50	<3	<1.0
ST-2	9:10	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-3	9:25	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	9:30	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	9:35	<50	<3	<1.0
	15:40	<50	<3	<1.0
ST-6	9:50	<50	<3	<1.0
	16:00	<50	<3	<1.0
ST-7	10:05	<50	<3	<1.0
	16:15	<50	<3	<1.0

Table 1

Week 37

Summary of Additional Periodic (Daily) Monitoring Data

June 22 nd , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:30	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:35	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	8:45	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-4	8:55	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-5	9:05	<50	<3	<1.0
	14:25	<50	<3	<1.0
ST-6	9:20	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-7	9:50	<50	<3	<1.0
	14:55	<50	<3	<1.0

*(ppb) Indicates results reported in parts per billion

** (ppm) Indicates results reported in parts per million

Table 2:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 33 VOCs Results: May 21st through 22nd (Co-located) and May 22nd through 23rd

Sample ID	ST-7A-VOC-052118		ST-7B-VOC-052118		ST-1-VOC-052218		Relative Percent Difference
Laboratory ID	18E1412-01		18E1412-02		18E1412-03		
Date Sampled	5/21/18 15:30 - 5/22/18 14:30		5/21/18 15:30 - 5/22/18 14:30		5/22/18 11:00 - 5/23/18 10:00		
Location	Station 7		Station 7 Duplicate		Station 1		Station 7 Pair
VOCs - TO-15	ppbV	ug/m ³	ppbV	ug/m ³	ppbV	ug/m ³	
Acetone	5.4	13	5.4	13	6.2	15	0.0%
Benzene	0.16	0.53	0.16	0.5	0.21	0.67	5.8%
Benzyl chloride	<0.040	<0.21	<0.040	<0.21	<0.040	<0.21	NC
Bromodichloromethane	<0.040	<0.27	<0.040	<0.27	<0.040	<0.27	NC
Bromoform	<0.040	<0.41	<0.040	<0.41	<0.040	<0.41	NC
Bromomethane	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
1,3-Butadiene	<0.040	<0.88	<0.040	<0.88	<0.040	<0.88	NC
2-Butanone (MEK)	<1.6	<4.7	<1.6	<4.7	<1.6	<4.7	NC
Carbon Disulfide	<0.40	<1.2	<0.40	<1.2	<0.40	<1.2	NC
Carbon Tetrachloride	0.08	0.5	0.082	0.51	0.076	0.48	2.0%
Chlorobenzene	<0.040	<0.18	<0.040	<0.18	<0.040	<0.18	NC
Chloroethane	<0.040	<0.11	<0.040	<0.11	<0.040	<0.11	NC
Chloroform	0.054	0.26	0.05	0.25	0.048	0.23	3.9%
Chloromethane	0.7	1.5	0.75	1.6	0.73	1.5	6.5%
Cyclohexane	<0.040	<0.14	<0.040	<0.14	<0.040	<0.14	NC
Dibromochloromethane	<0.040	<0.34	<0.040	<0.34	<0.040	<0.34	NC
1,2-Dibromoethane (EDB)	<0.040	<0.31	<0.040	<0.31	<0.040	<0.31	NC
1,2-Dichlorobenzene	<0.040	<0.24	<0.040	<0.24	<0.040	<0.24	NC
1,3-Dichlorobenzene	<0.040	<0.24	<0.040	<0.24	<0.040	<0.24	NC
1,4-Dichlorobenzene	0.064	0.38	0.06	0.36	0.048	0.29	5.4%
Dichlorodifluoromethane (Freon 12)	0.53	2.6	0.58	2.8	0.5	2.5	7.4%
1,1-Dichloroethane	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
1,2-Dichloroethane	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
1,1,1-Dichloroethylene	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
cis-1,2-Dichloroethylene	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
trans-1,2-Dichloroethylene	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
1,2-Dichloropropane	<0.040	<0.18	<0.040	<0.18	<0.040	<0.18	NC
cis-1,3-Dichloropropene	<0.040	<0.18	<0.040	<0.18	<0.040	<0.18	NC
trans-1,3-Dichloropropene	<0.040	<0.18	<0.040	<0.18	<0.040	<0.18	NC
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	0.046	0.32	<0.040	<0.28	<0.040	<0.28	NC
1,4-Dioxane	<0.40	<1.4	<0.40	<1.4	<0.40	<1.4	NC
Ethanol	7.7	14	11	20	8.2	16	35.3%
Ethyl Acetate	<0.080	<0.29	<0.080	<0.29	<0.080	<0.29	NC
Ethylbenzene	0.078	0.34	0.079	0.34	0.11	0.46	0.0%
4-Ethyltoluene	<0.040	<0.20	<0.040	<0.20	<0.040	<0.20	NC
Heptane	0.079	0.32	0.096	0.39	0.16	0.65	19.7%
Hexachlorobutadiene	<0.040	<0.43	<0.040	<0.43	<0.040	<0.43	NC
Hexane	<1.6	<5.6	<1.6	<5.6	<1.6	<5.6	NC
2-Hexanone (MBK)	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
Isopropanol	<1.6	<3.9	<1.6	<3.9	<1.6	<3.9	NC
Methyl tert-Butyl Ether (MTBE)	<0.040	<0.14	<0.040	<0.14	<0.040	<0.14	NC
Methylene Chloride	0.53	1.9	0.5	1.7	<0.40	<1.4	11.1%
4-Methyl-2-pentanone (MIBK)	<0.040	<0.16	<0.040	<0.16	<0.040	<0.16	NC
Naphthalene	0.15	0.76	0.16	0.81	0.15	0.78	6.4%
Propene	<1.6	<2.8	<1.6	<2.8	<1.6	<2.8	NC
Styrene	<0.040	<0.17	<0.040	<0.17	<0.040	<0.17	NC
1,1,2,2-Tetrachloroethane	<0.040	<0.27	<0.040	<0.27	<0.040	<0.27	NC
Tetrachloroethylene	0.09	0.61	0.088	0.6	0.57	3.9	1.7%
Tetrahydrofuran	<0.080	<0.24	<0.080	<0.24	<0.080	<0.24	NC
Toluene	0.48	1.8	0.5	1.9	0.78	2.9	5.4%
1,2,4-Trichlorobenzene	<0.040	<0.30	<0.040	<0.30	<0.040	<0.30	NC
1,1,1-Trichloroethane	<0.040	<0.22	<0.040	<0.22	<0.040	<0.22	NC
1,1,2-Trichloroethane	<0.040	<0.22	<0.040	<0.22	<0.040	<0.22	NC
Trichloroethylene	<0.040	<0.21	<0.040	<0.21	<0.040	<0.21	NC
Trichlorofluoromethane (Freon 11)	0.28	1.6	0.27	1.5	0.29	1.6	6.5%
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.16	<1.2	<0.16	<1.2	<0.16	<1.2	NC
1,2,4-Trimethylbenzene	0.12	0.61	<0.040	<0.20	0.11	0.55	NC
1,3,5-Trimethylbenzene	<0.040	<0.20	<0.040	<0.20	<0.040	<0.20	NC
Vinyl Acetate	<0.80	<2.8	<0.80	<2.8	<0.80	<2.8	NC
Vinyl Chloride	<0.040	<0.10	<0.040	<0.10	<0.040	<0.10	NC
m&p-Xylene	0.25	1.1	0.25	1.1	0.33	1.5	0.0%
o-Xylene	0.095	0.41	0.095	0.41	0.12	0.53	0.0%

Notes:

Values in **bold** indicate detected concentrations

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol

Relative Percent Difference (RPD) calculated using the following equation:

$$RPD = |X1 - X2| / [(X1+X2)/2]$$

where: X1 = original sample, X2 = duplicate sample

NC: RPD not calculable due to a non-detect result in one or both co-located sample

J: The results for trichlorofluoromethane are estimated quantities. The associated numerical values are the approximate concentration of the analyte in the samples.

J-: The result for 1,3,5-trimethyl benzene is an estimated quantity, but may be biased low.

Table 3:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 34 VOCs Results: May 29th through 30th and May 31st through June 1st

Sample ID	ST-4-VOC-052918		ST-5-VOC-053118	
Laboratory ID	18F0182-01		18F0182-02	
Date Sampled	5/29/18 10:00 to 5/30/18 09:00		5/31/2018 13:00 to 6/1/18 12:00	
Location	Station 4		Station 5	
VOCs - TO-15	ppbV	ug/m3	ppbV	ug/m3
Acetone	6.9	16	9.5	22
Benzene	0.14	0.45	0.19	0.61
Benzyl chloride	<0.035	<0.18	<0.035	<0.18
Bromodichloromethane	<0.035	<0.24	<0.035	<0.24
Bromoform	<0.035	<0.36	<0.035	<0.36
Bromomethane	<0.035	<0.14	<0.035	<0.14
1,3-Butadiene	<0.035	<0.078	<0.035	<0.078
2-Butanone (MEK)	<1.4	<4.1	<1.4	<4.1
Carbon Disulfide	<0.35	<1.1	<0.35	<1.1
Carbon Tetrachloride	0.067	0.42	0.066	0.41
Chlorobenzene	<0.035	<0.16	<0.035	<0.16
Chloroethane	<0.035	<0.0093	<0.035	<0.0093
Chloroform	<0.035	< 0.17	<0.035	<0.17
Chloromethane	0.45	0.92	0.63	1.3
Cyclohexane	<0.035	<0.12	<0.035	<0.12
Dibromochloromethane	<0.035	<0.30	<0.035	<0.30
1,2-Dibromoethane (EDB)	<0.035	<0.27	<0.035	<0.27
1,2-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21
1,3-Dichlorobenzene	<0.035	<0.21	<0.035	<0.21
1,4-Dichlorobenzene	<0.035	<0.21	0.058	0.35
Dichlorodifluoromethane (Freon 12)	0.1	0.52	0.2	0.97
1,1-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,2-Dichloroethane	<0.035	<0.14	<0.035	<0.14
1,1-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
cis-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
trans-1,2-Dichloroethylene	<0.035	<0.14	<0.035	<0.14
1,2-Dichloropropane	<0.035	<0.16	<0.035	<0.16
cis-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
trans-1,3-Dichloropropene	<0.035	<0.16	<0.035	<0.16
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.035	<0.25	<0.035	<0.25
1,4-Dioxane	<0.35	<1.3	<0.35	<1.3
Ethanol	8	15	9.4	18
Ethyl Acetate	1.9	6.7	0.35	1.2
Ethylbenzene	0.066	0.29	0.12	0.5
4-Ethyltoluene	<0.035	<0.17	<0.035	<0.17
Heptane	0.14	0.59	0.19	0.79
Hexachlorobutadiene	<0.035	<0.37	<0.035	<0.37
Hexane	<1.4	<4.9	<1.4	<4.9
2-Hexanone (MBK)	<0.035	<0.14	<0.035	<0.14
Isopropanol	5.2	13	15	36
Methyl tert-Butyl Ether (MTBE)	<0.035	<0.13	<0.035	<0.13
Methylene Chloride	0.94	3.2	0.63	2.2
4-Methyl-2-pentanone (MIBK)	<0.035	<0.14	<0.035	<0.14
Naphthalene	0.11	0.58	0.43	2.2
Propene	<1.4	<2.4	<1.4	<2.4
Styrene	<0.035	<0.15	<0.035	<0.15
1,1,2,2-Tetrachloroethane	<0.035	<0.24	<0.035	<0.24
Tetrachloroethylene	0.048	0.32	0.17	1.1
Tetrahydrofuran	<0.035	<0.21	<0.035	<0.21
Toluene	0.67	2.5	0.89	3.4
1,2,4-Trichlorobenzene	<0.035	<0.26	<0.035	<0.26
1,1,1-Trichloroethane	<0.035	<0.19	<0.035	<0.19
1,1,2-Trichloroethane	<0.035	<0.19	<0.035	<0.19
Trichloroethylene	<0.035	<0.19	<0.035	<0.19
Trichlorofluoromethane (Freon 11)	0.2	1.1	0.23	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.14	<1.1	<0.14	<1.1
1,2,4-Trimethylbenzene	0.082	0.4	0.14	0.68
1,3,5-Trimethylbenzene	<0.035	<0.17	0.042	0.21
Vinyl Acetate	<0.70	<2.5	<0.70	<2.5
Vinyl Chloride	<0.035	<0.090	<0.035	<0.090
m&p-Xylene	0.22	0.97	0.32	1.4
o-Xylene	0.087	0.38	0.13	0.56

Notes:

Values in **bold** indicate detected concentrations

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol



**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Meteorological Summary
June 18th through June 22nd, 2018**

June 18 th , 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	2.15	85.7

June 19 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	2.67	82.3

June 20 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
S	4.51	75.8

June 21 st , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
E	3.74	75.1

June 22 nd , 2018 ***		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ENE	6.93	69.1

* Monday's meteorological data represents an average for the time period of 06:30 to 23:45.

** Tuesday's, Wednesday's, and Thursday's meteorological data represents averages for the time period of 00:00 to 23:45.

*** Friday's meteorological data represents an average for the time period of 00:00 to 16:00.

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT





WI #15-081

MEMORANDUM

June 25, 2018

To: William Lee/ de maximis, inc.
Kirsten Meyers / TRC

From: Silas Bensing, Ani Toncheva / Wilson Ihrig

Subject: Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study, Weekly Noise Monitoring Report, 18 June – 22 June, 2018

Noise Monitoring Locations

Figure 1 shows the noise monitoring locations. NM-1 is installed at a light pole on the north side of TB4 and is approximately 25 feet from the north edge of the canal. NM-2 is installed at the existing guard rail on the south side of TB4, approximately 4 feet from the south edge of the canal. Photos 1 and 2 show the recent field conditions at the monitors.

Noise Monitoring Results

Figures 2 through 11 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan¹. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference².

¹ Wilson Ihrig. *Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study Noise and Vibration Monitoring Plan*. California: prepared for Gowanus Canal Remedial Design Group, DRAFT May 2017

² Wilson Ihrig. *Gowanus Canal Remedial Design Project RTA-1 Noise and Vibration Baseline Report*. California: prepared for Geosyntec Consultants Inc., October 2015.

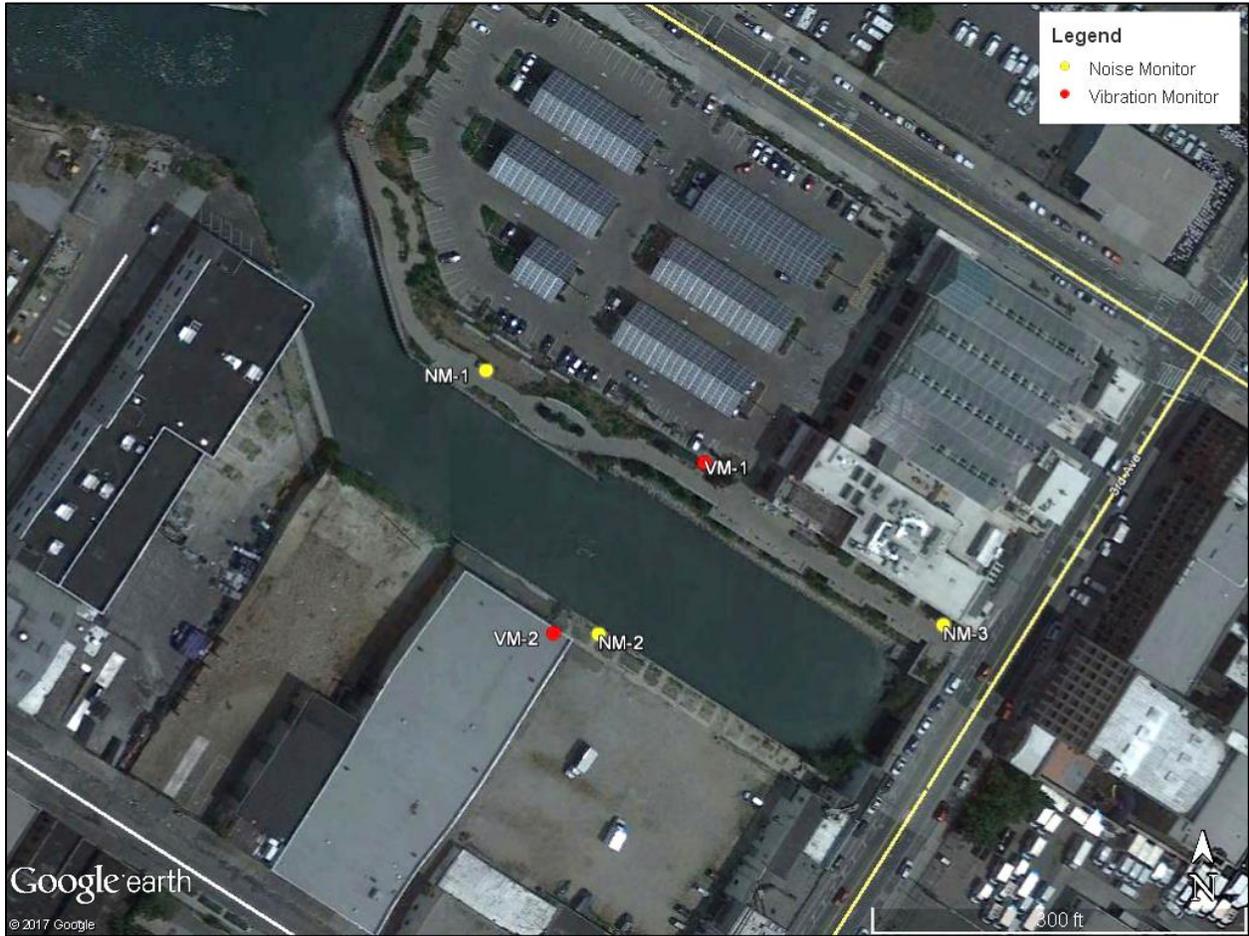


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study



**Photo 1: Noise Monitoring Location NM-1
(26 September 2017)**



**Photo 2: Noise Monitoring Location NM-2
(25 September 2017)**

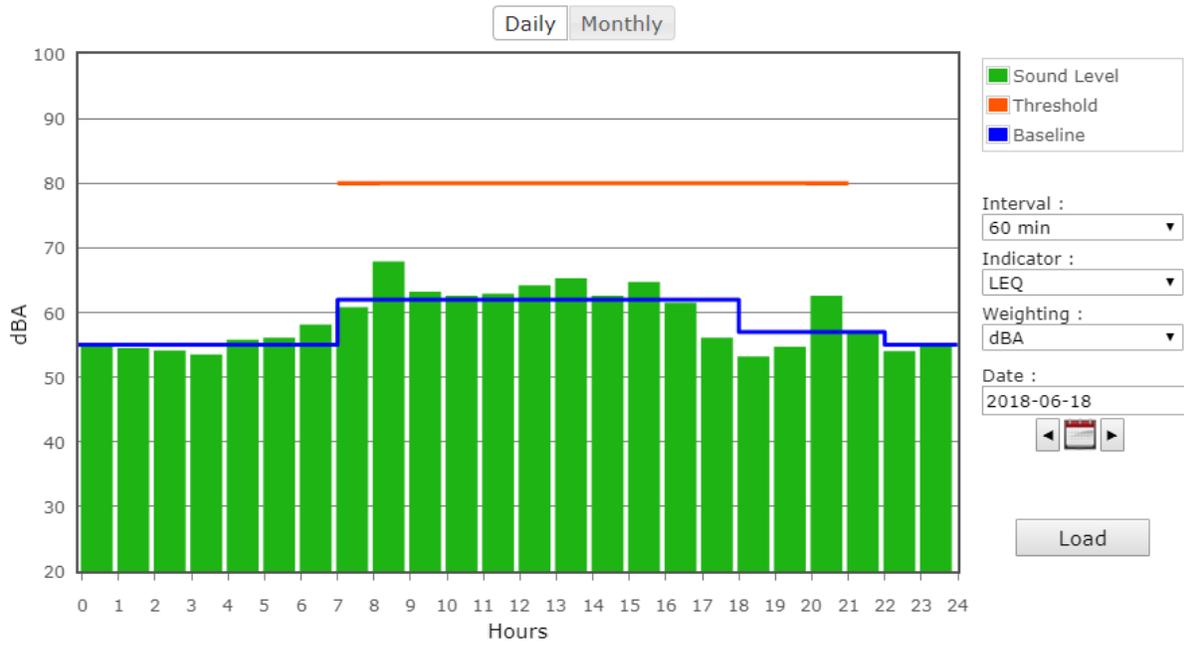


Figure 2: North Monitor NM-1 on Monday

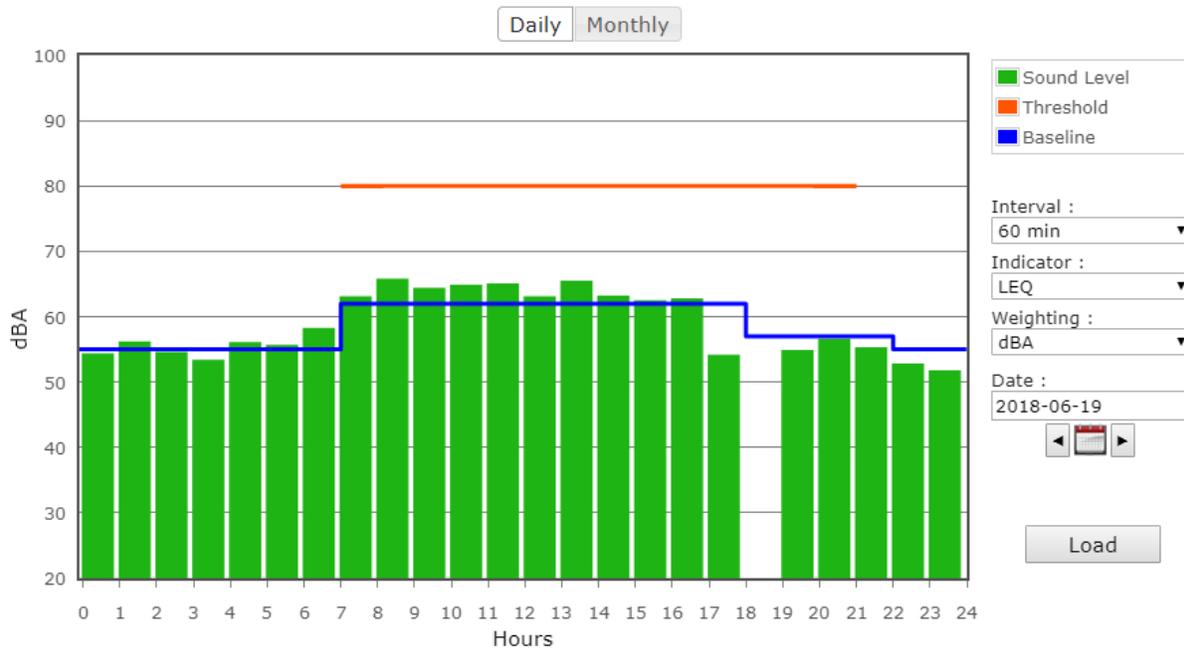


Figure 3: North Monitor NM-1 on Tuesday

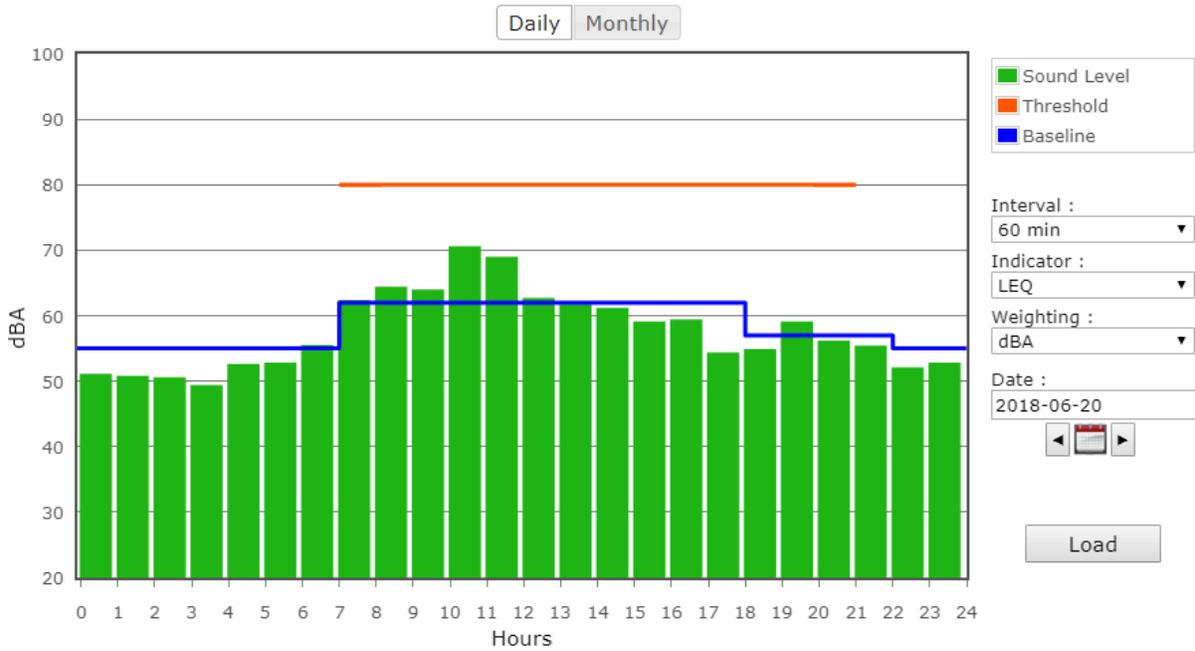


Figure 4: North Monitor NM-1 on Wednesday

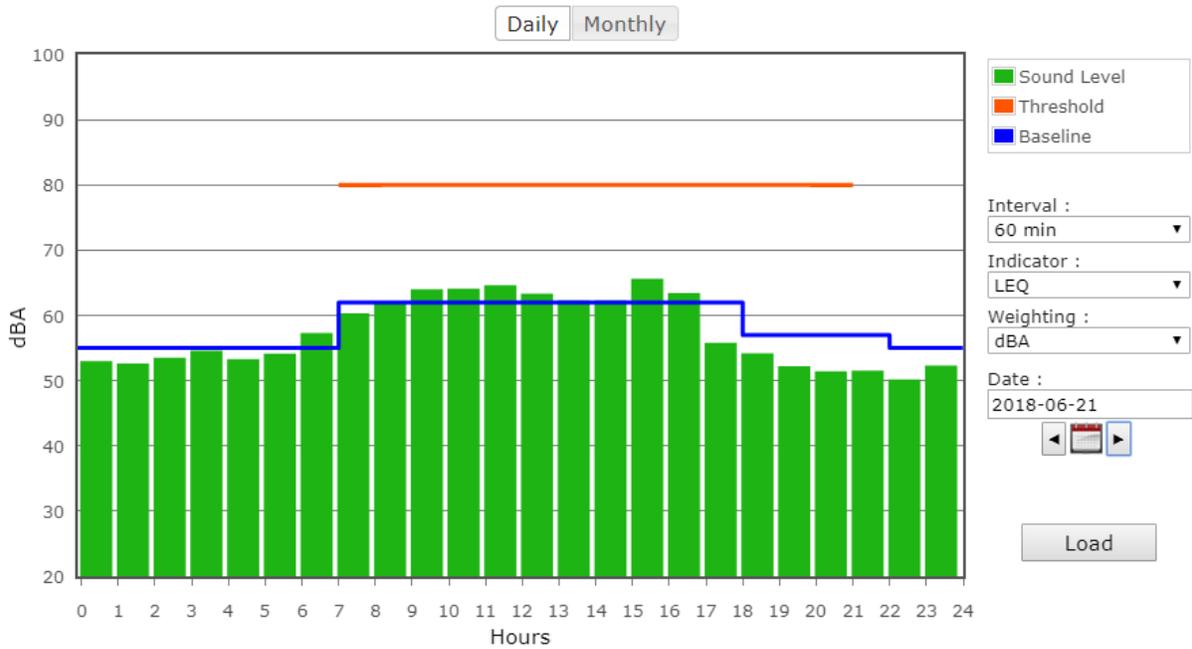


Figure 5: North Monitor NM-1 on Thursday

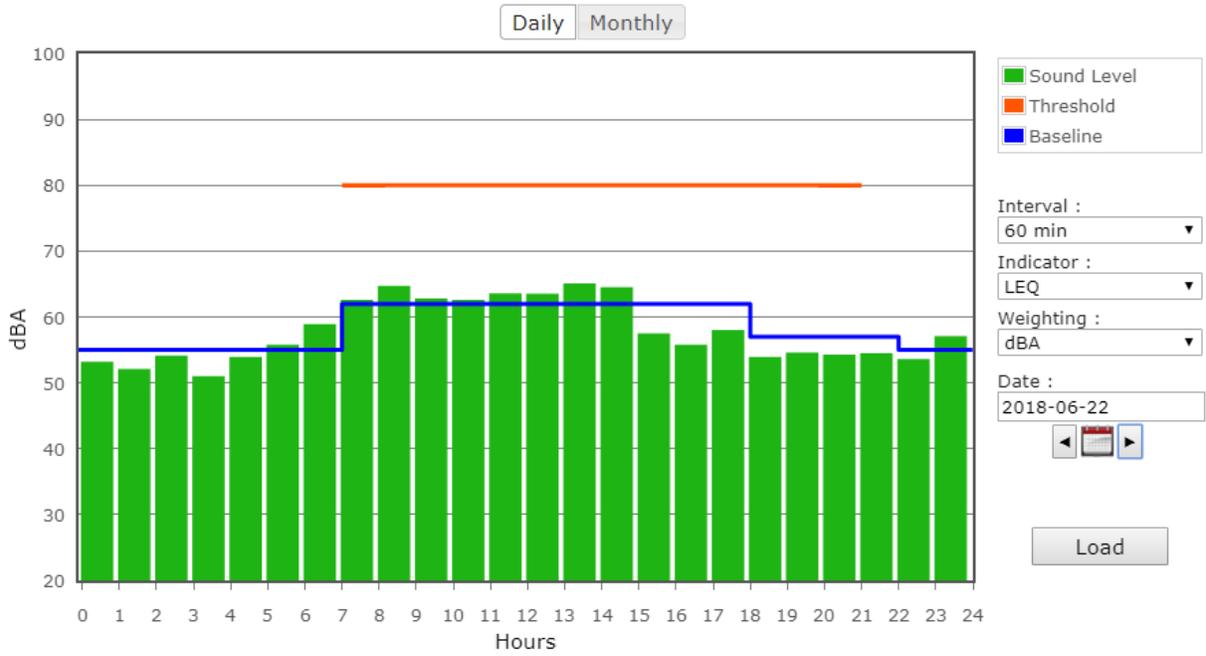


Figure 6: North Monitor NM-1 on Friday

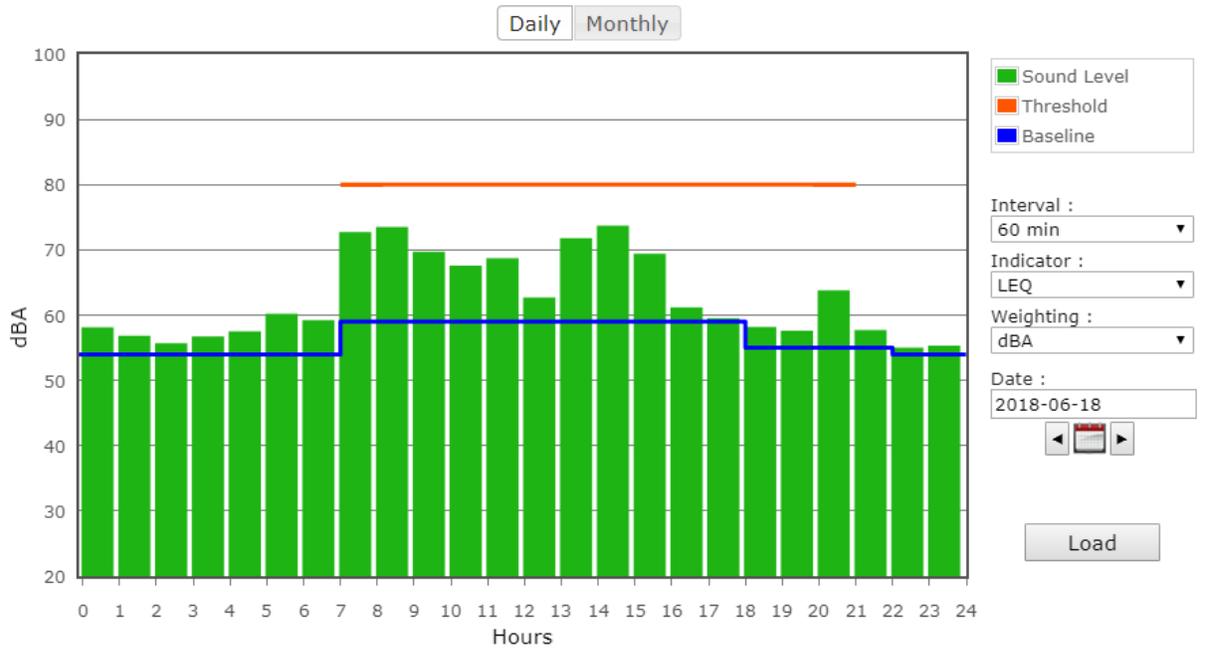


Figure 7: South Monitor NM-2 on Monday

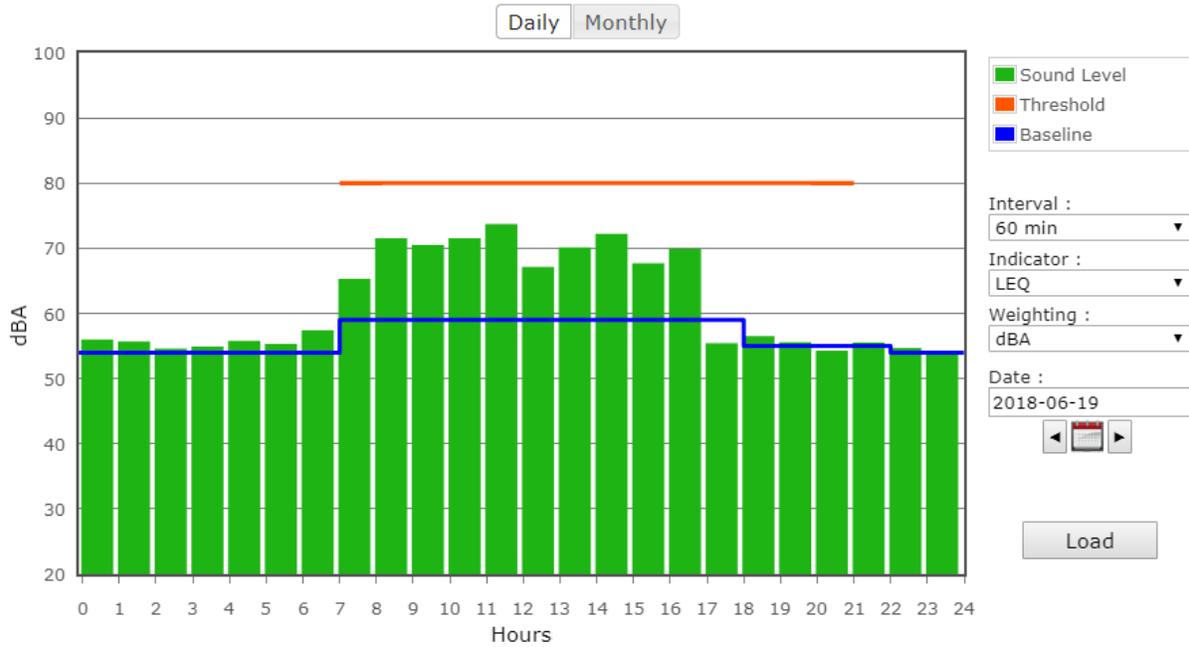


Figure 8: South Monitor NM-2 on Tuesday

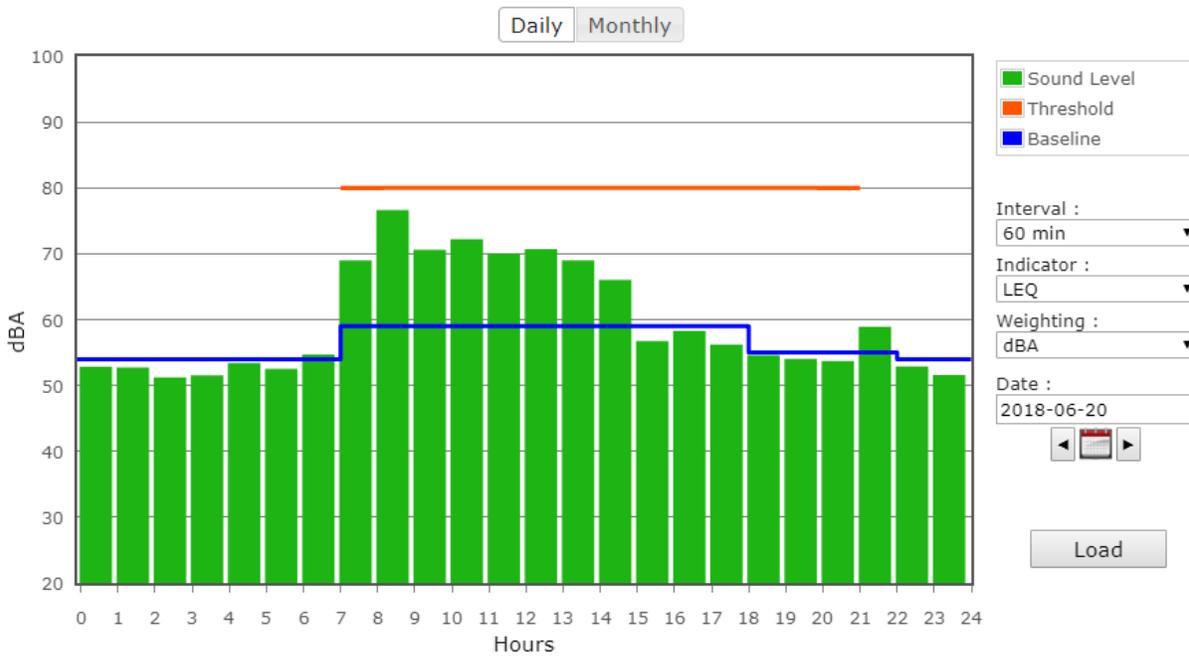


Figure 9: South Monitor NM-2 on Wednesday

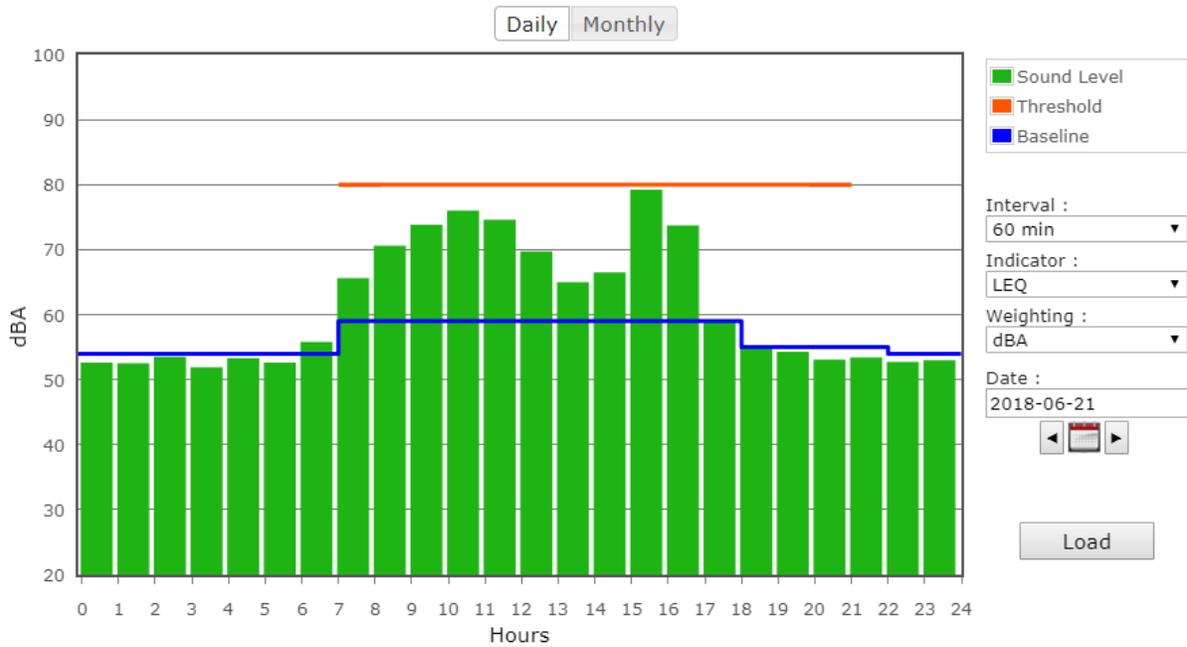


Figure 10: South Monitor NM-2 on Thursday

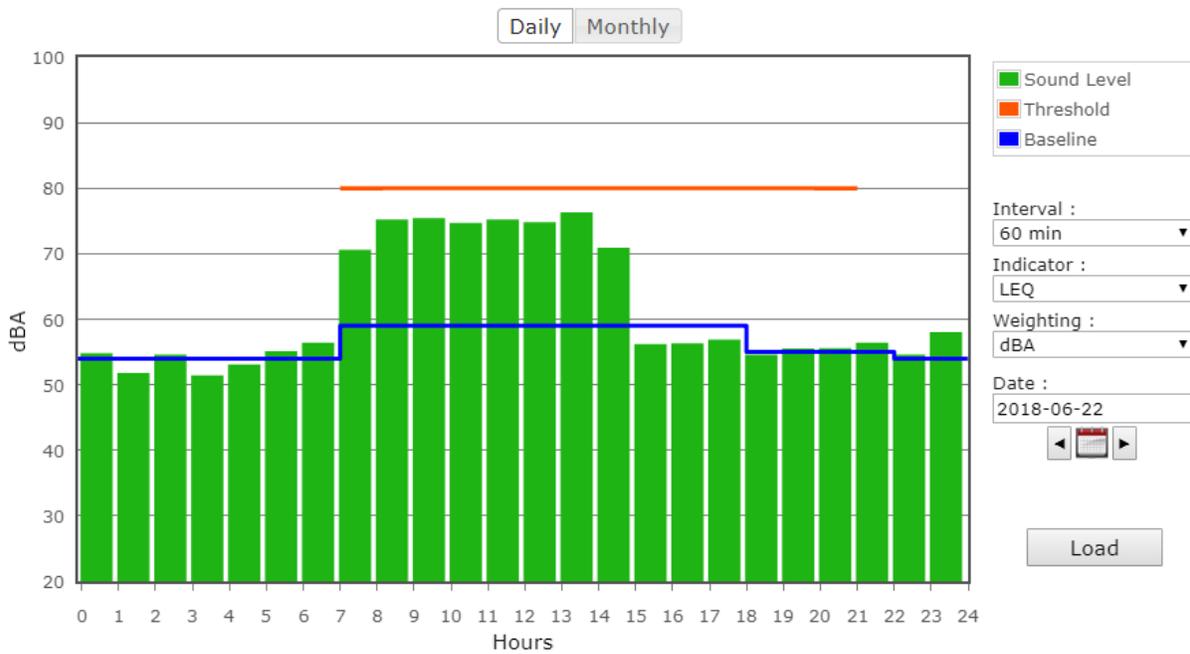


Figure 11: South Monitor NM-2 on Friday

AHRS WEEKLY REPORT





ARCHAEOLOGY & HISTORIC RESOURCE SERVICES

Cultural Resource Consultants

ARCHAEOLOGY MONITORING REPORT

PROJECT	DATES	PROJECT LOCATION	AHRS PERSONNEL IN FIELD
Turning Basin 4 Pilot Capping and Dredging	6/18 to 6/22/18	TB4/Citizens Site	Jonathan Bream

Week Overview

AHRS is conducting Level 1 archaeological monitoring in coordination with soft sediment dredging and Level 2 monitoring in coordination with native alluvium dredging in TB4.

For Level 1 monitoring, AHRS archaeologist K. French reviewed photographs of screened debris staged at Clean Earth. Clean Earth did not request an in-person site visit this week.

For Level 2 monitoring, AHRS archaeologists J. Bream were on site to monitor screening of dredged material at the Citizens site.

Monday, June 18

K. French reviewed photos of debris screened at Clean Earth on June 18. J. Bream was at Citizens for Level 2 monitoring of screening native alluvial sediments. No screening was conducted.

Tuesday, June 19

J. Bream conducted Level 2 monitoring of screening dredged native alluvial sediments at Citizens Site. Wood debris (beam/bulkhead piece) was collected in oversize bin. No photos posted from Clean Earth for review.

Wednesday, June 20

J. Bream conducted Level 2 monitoring of screening dredged native alluvial sediments at Citizens Site. Wood debris (beam/bulkhead piece) was collected in oversize bin and a spark plug or welding tool was collected. No photos posted from Clean Earth for review.

Thursday, June 21

K. French and J. Bream both reviewed photos of debris screened at Clean Earth on June 21. J. Bream conducted Level 2 monitoring of screening dredged native alluvial sediments at Citizens Site. A non-descript piece of wood was collected in oversize bin. No potentially significant archaeological debris identified.

Friday, June 22

J. Bream reviewed photo of debris screened at Clean Earth on June 22. J. Bream conducted Level 2 monitoring of screening dredged native alluvial sediments at Citizens Site. Two metal pieces and some wood were collected in oversize bin.

NEXT WEEK

Level 2 monitoring of native alluvium continues. Screening will take place at the Citizens site and an AHRS monitor will be onsite. Jonathan Bream is tentatively scheduled back at Clean Earth June 27 for additional Level 1 monitoring.

**WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA
(NO ACTIVITIES DURING WEEK)**



CUMULATIVE DREDGED MATERIAL CHART



Gowanus Canal TB4 Pilot Study
Cumulative Material Dredged
Weekly Report Update

