GOWANUS CANAL SUPERFUND SITE RTA1 REMEDIAL CONSTRUCTION Water Quality Monitoring Weekly Data Summary

PERIOD: June 19 – June 23, 2023

Date of Report: June 27, 2023

Report Contents

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

Prepared by

B&B Engineers & Geologists of new york, p.c.

an affiliate of Geosyntec Consultants

1255 Roberts Blvd, Suite 200 Kennesaw, GA 30144 Project Number JR0289A

1. SCOPE OF MONITORING

1.1 <u>Current Buoy Locations</u>

The following report summarizes water quality monitoring data collected during the week of June 19, 2023. In accordance with the Water Quality Monitoring Plan for In-waterway Construction Activities (WQMP) three turbidity buoys were deployed to monitor turbidity related to dredging activities. One turbidity buoy was deployed just south of the 3rd Street Bridge outside of the air curtain and traditional turbidity curtain and is referred to as the 3rd Street Sentinel Buoy. A second turbidity buoy was deployed just south of Carroll St Bridge to monitor dredging activities north of Carroll Street Bridge and is referred to as the Carroll Street Sentinel Buoy. The third turbidity buoy was deployed in the Fourth Street Turning Basin in order to monitor background turbidity unaffected by in-water construction activities and is referred to as the Ambient Buoy.

Each turbidity buoy was equipped with a YSI EXO3 water quality meter with optical turbidity sensor. The buoys were field calibrated and programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a File Transfer Portal (FTP) site via telemetry. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4.

1.2 <u>Previous Buoy Locations</u>

- On January 22, 2021, prior to dredging north of the Union Street Bridge, a fourth turbidity buoy was deployed just south of the Union Street Bridge and was referred to as the Union Street Sentinel Buoy. This fourth turbidity buoy was removed prior to the start of pipe pile installation.
- On Wednesday, September 22, 2021, the Carroll Street Sentinel Buoy was relocated to the west side of the canal where Degraw Street intersects the canal to monitor cofferdam removal activities conducted in the vicinity of the Flushing Tunnel. This buoy was renamed the Degraw Street Sentinel Buoy during cofferdam removal activities.
- On October 14, 2021, the Degraw Street Sentinel Buoy was removed from the canal for servicing. On October 20, 2021, the Degraw Street Sentinel Buoy was redeployed to its position south of the Carroll Street Bridge and was renamed to the Carroll Street Sentinel Buoy.
- On November 15, 2021, the Carroll Street Sentinel Buoy was moved to the Union Street Bridge and renamed the Union Street Sentinel Buoy. On December 3, 2021, the Union Street Buoy was removed from the canal for servicing and re-deployed at 3rd Street Bridge in preparation for the resumption of ISS operations. On December 8, 2021, a sentinel buoy was re-deployed just south of the Carroll Street Bridge.
- Since December 8, 2021, the sentinel buoy deployed at the northern-most portion of the canal has alternated positioning between the Union Street Bridge and Carroll Street Bridge locations based on the in-canal construction activities being conducted at any given time.

- On January 9, 2023, the Carroll Street Sentinel Buoy was moved to the Third Street Bridge location and renamed the Third Street Sentinel Buoy. Additionally, the former Third Street Sentinel Buoy was removed from the canal for servicing.
- On February 6, 2023, the newly serviced Third Street Sentinel Buoy was reinstalled at Third Street Bridge, and the former Carroll Street Sentinel Buoy was reinstalled at Carroll Street Bridge.
- The Ambient Buoy was removed from service on Friday, February 17, 2023, due to a faulty communications system. Following investigation into the cause of the fault and the appropriate repairs made, the Ambient Buoy was returned to service on Thursday, April 13, 2023. Due to similar issues, the Ambient Buoy was removed from service again on Monday, April 24, 2023, before being redeployed on Friday, May 12, 2023, and again removed from service on Monday, May 15, 2023, before being redeployed on Monday, June 12, 2023.
- On Thursday April 13, 2023, the Carroll Street Sentinel Buoy was assessed to be within 100ft of in-canal construction activities being conducted at Carroll Street Bridge, and consequently was repositioned to the North Third Street Sentinel Buoy location.
- Data from the Third Street Sentinel Buoy was not reported from Thursday June 1, 2023 to June 2, 2023 due to a power failure and/or faulty communications system preventing transmission of readings. The Third Street Sentinel Buoy was returned to service with data collection resuming on June 5, 2023.
- Due to an error with sonde deployment, turbidity data is not currently available for the Ambient Buoy and Third Street Sentinel Buoy between June 19 and June 23, 2023. Efforts to retrieve this data remain ongoing.



2. **REPORT OF EXCEEDANCES**

There were no exceedances of the quantitative action criterion. An exceedance of the quantitative trigger criterion occurred at the North Third Street Sentinel Buoy on Monday, June 19 from 4:30 PM to 6:00 PM due to suspended sediments caused by capping activities. In addition, an exceedance of the quantitative trigger criterion at the North Third Street Sentinel Buoy occurred on Friday, June 19 from 9:15 AM to 10:15 AM due to passing marine vessels.

In response, the contractor has made preparations to place turbidity curtains at Third Street Bridge when turbidity readings and/or visual indications of turbidity are reported at the southern boundary of RTA1.

- **Trigger criterion** Any of the following:
 - The rolling average of the relevant sentinel buoy turbidity measurements over a onehour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed at the relevant sentinel buoy and in-waterway construction activities are readily identified as the source.
- Action criterion Any of the following:
 - The rolling average of the turbidity measurements of the sentinel buoy outside of RTA1 over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements and inwaterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed outside of RTA1 and any deployed engineering controls and in-waterway construction activities are readily identified as the source.

An outlier is defined as a reading that is outside the range of 50 to 200 percent of the average of the three previous readings. In addition, to be considered an outlier, the subsequent reading must return to a range of 75 to 133 percent of the average of the three readings preceding the outlier.

2.1 <u>Response to Criteria Exceedances</u>

The trigger level criterion serves to provide early notification to the contractor of construction activities that may lead to an exceedance of the action level criterion. In the event of an exceedance to the trigger criterion, the contractor will not be stopped, and the contractor will be directed to investigate the source of the exceedance and evaluate Best Management Practices (BMPs). In the event of an exceedance to the action level criterion, in-waterway construction activities may be slowed or temporarily suspended as necessary while the contractor investigates the source of the exceedance and corrective measures are determined. A more detailed

description of responses to exceedances of the trigger and action level criteria is provided in Section 4.2 of the WQMP.

There were no exceedances of the quantitative action criterion. An exceedance of the quantitative trigger criterion occurred at the North Third Street Sentinel Buoy on Monday, June 19 from 4:30 PM to 6:00 PM due to suspended sediments caused by capping activities. In addition, an exceedance of the quantitative trigger criterion at the North Third Street Sentinel Buoy occurred on Friday, June 19 from 9:15 AM to 10:15 AM due to passing marine vessels.

In response, the contractor has made preparations to place turbidity curtains at Third Street Bridge when turbidity readings and/or visual indications of turbidity are reported at the southern boundary of RTA1.

3. TURBIDITY BUOY DATA

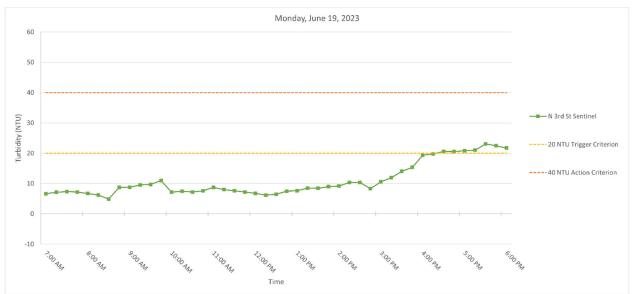
The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 6 PM from June 19 – June 23, 2023.

There were no exceedances of the quantitative action criterion. An exceedance of the quantitative trigger criterion occurred at the North Third Street Sentinel Buoy as summarized in Section 2 above. In response, the contractor has made preparations to place turbidity curtains at Third Street Bridge when turbidity readings and/or visual indications of turbidity are reported at the southern boundary of RTA1.

Due to an error with sonde deployment, turbidity data is not available for the Ambient Buoy and Third Street Sentinel Buoy between June 19 and June 23, 2023.

3.1 <u>Monday, June 19, 2023</u>

Figure 3. Hourly rolling average turbidity readings on Monday, June 19, 2023, from 7 AM to 6 PM.



Note: Exceedances of the quantitative trigger criterion at the North Third Street Sentinel Buoy occurred from 4:30 PM to 6:00 PM due to suspended sediments caused by capping activities. Turbidity readings from the North Third Street Sentinel Buoy of 93.72 NTU at 10:30 AM and 135.63 NTU at 2:30 PM were removed as outliers in accordance with the water quality monitoring plan.

3.2 <u>Tuesday, June 20, 2023</u>

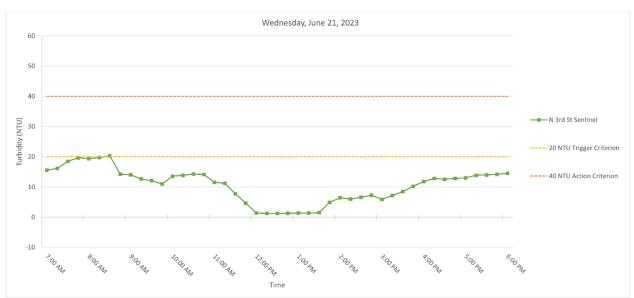
Figure 3. Hourly rolling average turbidity readings on Tuesday, June 20, 2023, from 7 AM to 6 PM.



Note: Elevated turbidity readings from 7:30 AM to 7:45 AM were not related to construction activities as no capping activities were occurring at this time. Turbidity readings from the North Third Street Sentinel Buoy of 26.56 NTU at 1:15 PM and 104.34 NTU at 4:45 PM were removed as outliers in accordance with the water quality monitoring plan.

3.3 <u>Wednesday, June 21, 2023</u>

Figure 4. Hourly rolling average turbidity readings on Wednesday, June 21, 2023, from 7 AM to 6 PM.



Note: Elevated turbidity readings from 8:00 AM to 8:30 AM were not related to construction activities as no capping activities were occurring at this time. Turbidity readings from the North Third Street Sentinel Buoy of 90.4 NTU, 42.98 NTU, and 21.12 NTU at 7:30 AM, 11:15 AM, and 1:00 PM, respectively, were removed as outliers in accordance with the water quality monitoring plan.

3.4 <u>Thursday, June 22, 2023</u>

Figure 5. Hourly rolling average turbidity readings on Thursday, June 22, 2023, from 7 AM to 6 PM.



Note: Turbidity readings from the North Third Street Sentinel Buoy of 390.58 NTU, 256.36 NTU, 400.09 NTU, 365.84 NTU, 30.18 NTU, and 32.03 NTU at 7:45 AM, 12:30 PM, 1:45 PM, 2:00 PM, 3:00 PM, and 5:00 PM, respectively, were removed as outliers in accordance with the water quality monitoring plan.

3.5 **Friday, June 23, 2023**

Figure 6. Hourly rolling average turbidity readings on Friday, June 23, 2023, from 7 AM to 6 PM.



Note: Exceedances of the quantitative trigger criterion at the North Third Street Sentinel Buoy occurred from 9:15 AM to 10:15 AM due to passing marine vessels (no capping activities at this time). Turbidity readings from the North Third Street Sentinel Buoy of 488.87 NTU at 7:15 AM and 271.96 NTU at 8:45 AM were removed as outliers in accordance with the water quality monitoring plan.

SUMMARY OF VISUAL OBSERVATIONS

Visual indications of elevated turbidity were periodically observed during the reporting period attributable to capping activities. No sheens attributable to in-canal work operations were observed above background conditions. Turbid discharges were observed during the reporting period from storm water outfalls, including from the high-level storm sewer pipe adjacent to OH-005. Additionally, turbid discharge was observed attributable to dewatering activities at the Salt Lot during the reporting period.

APPENDIX A Turbidity Data Tables

Monday, June 19, 2023

Time	Turbidity (NTU)			Ro	lling Average Turbidity (N	Difference (NTU)		
	Ambient	3rd Street	N 3rd Street	Ambient	3rd Street	N 3rd Street	3rd St - Ambient	N 3rd St - Ambient
7:00:00			8.48			6.63		
7:15:00			7.13			7.12		
7:30:00			7.88			7.34		
7:45:00			5.57			7.22		
8:00:00			4.41			6.69		
8:15:00			6.16			6.23		
8:30:00			0.19			4.84		
8:45:00			27.21			8.71		
9:00:00			5.81			8.76		
9:15:00			8.37			9.55		
9:30:00			6.75			9.67		
9:45:00			6.92			11.01		
10:00:00			8			7.17		
10:15:00			7.12			7.43		
10:30:00						7.20		
10:45:00			8.19			7.56		
11:00:00			11.57			8.72		
11:15:00			5.04			7.98		
11:30:00			5.69			7.62		
11:45:00			5.49			7.20		
12:00:00			6.1			6.78		
12:15:00			8.63			6.19		
12:30:00			6.44			6.47		
12:45:00			10.7			7.47		
13:00:00			6.3			7.63		
13:15:00			10.55			8.52		
13:30:00			8.06			8.41		
13:45:00			9.28			8.98		
14:00:00			11.68			9.17		
14:15:00			12.28			10.37		
14:30:00						10.33		
14:45:00			0.01			8.31		
15:00:00			18.36			10.58		
15:15:00			17			11.91		
15:30:00			20.87			14.06		
15:45:00			20.53			15.35		
16:00:00			20.07			19.37		
16:15:00			20.26			19.75		
16:30:00			21.26			20.60		
16:45:00			20.7			20.56		
17:00:00			21.96			20.85		
17:15:00			21			21.04		
17:30:00			30.47			23.08		
17:45:00			18.11			22.45		
18:00:00			17.03			21.71		

Tuesday, June 20, 2023

Time	Turbidity (NTU)			Ro	lling Average Turbidity <mark>(</mark> N	Difference (NTU)		
	Ambient	3rd Street	N 3rd Street	Ambient	3rd Street	N 3rd Street	3rd St - Ambient	N 3rd St - Ambient
7:00:00			16.1			19.82		
7:15:00			14.32			18.64		
7:30:00			26.47			21.43		
7:45:00			15.04			21.50		
8:00:00			13.13			17.01		
8:15:00			13.14			16.42		
8:30:00			14.65			16.49		
8:45:00			14.34			14.06		
9:00:00			10.85			13.22		
9:15:00			14.31			13.46		
9:30:00			12.77			13.38		
9:45:00			15.22			13.50		
10:00:00			21.21			14.87		
10:15:00			14.3			15.56		
10:30:00			15.15			15.73		
10:45:00			26.7			18.52		
11:00:00			12.5			17.97		
11:15:00			14.75			16.68		
11:30:00			13.05			16.43		
11:45:00			14.98			16.40		
12:00:00			0.05			11.07		
12:15:00			13.06			11.18		
12:30:00			11.31			10.49		
12:45:00			15.83			11.05		
13:00:00			8.76			9.80		
13:15:00						12.24		
13:30:00			12.51			12.10		
13:45:00			12.2			12.33		
14:00:00			10.92			11.10		
14:15:00			10.5			11.53		
14:30:00			9.46			11.12		
14:45:00			11			10.82		
15:00:00			10.55			10.49		
15:15:00			11.52			10.61		
15:30:00			12.51			11.01		
15:45:00			25.19			14.15		
16:00:00			19.7			15.89		
16:15:00			16.66			17.12		
16:30:00			18.59			18.53		
16:45:00	-					20.04		-
17:00:00			19.82			18.69		
17:15:00			18.71			18.45		
17:30:00			20.55			19.42		
17:45:00			15.5			18.65		
18:00:00			15.97			18.11		

Wednesday, June 21, 2023

Time	Turbidity (NTU)			Ro	olling Average Turbidity (N	Difference (NTU)		
	Ambient	3rd Street	N 3rd Street	Ambient	3rd Street	N 3rd Street	3rd St - Ambient	N 3rd St - Ambient
7:00:00			16.61			15.56		
7:15:00			18			16.16		
7:30:00			24.36			18.49		
7:45:00						19.66		
8:00:00			18.58			19.39		
8:15:00			17.89			19.71		
8:30:00			20.35			20.30		
8:45:00			0.08			14.23		
9:00:00			13.38			14.06		
9:15:00			11.43			12.63		
9:30:00			15.01			12.05		
9:45:00			14.97			10.97		
10:00:00			12.93			13.54		
10:15:00			14.93			13.85		
10:30:00			13.59			14.29		
10:45:00			14.23			14.13		
11:00:00			2.05			11.55		
11:15:00						11.20		
11:30:00			1.18			7.76		
11:45:00			1.11			4.64		
12:00:00			1.27			1.40		
12:15:00			1.51			1.27		
12:30:00			1.27			1.27		
12:45:00			1.33			1.30		
13:00:00						1.35		
13:15:00			1.37			1.37		
13:30:00			1.97			1.49		
13:45:00			14.9			4.89		
14:00:00			7.42			6.42		
14:15:00			4.34			6.00		
14:30:00			4.27			6.58		
14:45:00			5.28			7.24		
15:00:00			8.1			5.88		
15:15:00			13.74			7.15		
15:30:00			10.83			8.44		
15:45:00			13.33			10.26		
16:00:00			12.96			11.79		
16:15:00			13.34			12.84		
16:30:00			12.12			12.52		
16:45:00			12.33			12.82		
17:00:00			14.37			13.02		
17:15:00			17.2			13.87		
17:30:00			13.81			13.97		
17:45:00			13.09			14.16		
18:00:00			13.99			14.49		

Thursday, June 22, 2023

Time	Turbidity (NTU)			Ro	lling Average Turbidity (N	Difference (NTU)		
	Ambient	3rd Street	N 3rd Street	Ambient	3rd Street	N 3rd Street	3rd St - Ambient	N 3rd St - Ambient
7:00:00			1.45			1.76		
7:15:00			1.54			1.70		
7:30:00			6.26			2.60		
7:45:00						2.76		
8:00:00			1.84			2.77		
8:15:00			2			2.91		
8:30:00			3.04			3.29		
8:45:00			11.56			4.61		
9:00:00			3.45			4.38		
9:15:00			8.55			5.72		
9:30:00			8.62			7.04		
9:45:00			7.92			8.02		
10:00:00			10.04			7.72		
10:15:00			7.11			8.45		
10:30:00			10.52			8.84		
10:45:00			7.89			8.70		
11:00:00			5.7			8.25		
11:15:00			0.96			6.44		
11:30:00			1.23			5.26		
11:45:00			1.28			3.41		
12:00:00			8.54			3.54		
12:15:00			44.44			11.29		
12:30:00						13.87		
12:45:00			8.09			15.59		
13:00:00			6.5			16.89		
13:15:00			9.15			17.05		
13:30:00			16.15			9.97		
13:45:00						9.97		
14:00:00						10.60		
14:15:00			6.17			10.49		
14:30:00			4.85			9.06		
14:45:00			6.49			5.84		
15:00:00						5.84		
15:15:00			7.43			6.24		
15:30:00			27.33			11.53		
15:45:00			12.39			13.41		
16:00:00			12.46			14.90		
16:15:00			11.97			14.32		
16:30:00			9.88			14.81		
16:45:00			15.25			12.39		
17:00:00						12.39		-
17:15:00			9.19			11.57		
17:30:00			8.16			10.62		
17:45:00			29.56			15.54		
18:00:00			17.83			16.19		

Friday, June 23, 2023

Time	Turbidity (NTU)			Ro	olling Average Turbidity (N	Difference (NTU)		
	Ambient	3rd Street	N 3rd Street	Ambient	3rd Street	N 3rd Street	3rd St - Ambient	N 3rd St - Ambient
7:00:00			1.11			2.76		
7:15:00						0.48		
7:30:00			7.26			2.90		
7:45:00			0.93			2.41		
8:00:00			13.01			5.58		
8:15:00			7.92			7.28		
8:30:00			14.83			8.79		
8:45:00						9.17		
9:00:00			6.15			10.48		
9:15:00			86.65			28.89		
9:30:00			0.97			27.15		
9:45:00			13.74			26.88		
10:00:00			2.53			22.01	-	-
10:15:00			7.34			22.25		
10:30:00			0.24			4.96		
10:45:00			4.06			5.58		
11:00:00			31.49			9.13		
11:15:00			6.97			10.02		
11:30:00			4.85			9.52		
11:45:00			0.33			9.54		
12:00:00			0.1			8.75		
12:15:00			0.36			2.52		
12:30:00			0.41			1.21		
12:45:00			0.24			0.29		
13:00:00			0.01			0.22		
13:15:00			0.23			0.25		
13:30:00			0.51			0.28		
13:45:00			0.31			0.26		
14:00:00			0.66			0.34		
14:15:00			0.37			0.42		
14:30:00						0.46		
14:45:00			0.3			0.41		
15:00:00			0.2			0.38		
15:15:00			2.68			0.89		
15:30:00			0.27			0.86		
15:45:00			0.21			0.73		
16:00:00			0.07			0.69		
16:15:00			0.01			0.65		
16:30:00			0.64			0.24		
16:45:00			0.57			0.30		
17:00:00			1.24			0.51		
17:15:00	-		1.24		-	0.74	-	-
17:30:00	-		0.63			0.86	-	-
17:45:00			0.71			0.88		
18:00:00			0.62		-	0.89		