

# Newtown Creek Aeration System

August 30, 2021



For Discussion Purposes Only

# Agenda

- **Background**
- **Noise Level Testing**
- **Review of Modified Seasonal Operation**
  - Augmented Monitoring Program and Triggers for Re-Initiation of Aeration
- **Dissolved Oxygen Data**
  - 2021 Data
  - Temporal Trends
- **System Repairs**
  - Line Breaks
  - Repair + Maintenance Contract
  - Diffuser Improvement
- **System Impacts**
- **Questions**



# Noise Level Testing

Location (English Kills)	Noise Level In Decibels dB(A)		
	6/26/2021	7/21/2021	8/3/2021
Front of building (Main door closed)	72	74	75
Left side of building	59	64	62
Right side (unable to access within property line)	n/a	n/a	n/a
Rear (in front of air intake louvers)	95	94	91
Inside building:			
Office (door closed)	82	93	-
Office (door open)	94	105	-
In front of blower	107	110	107
Opening of relief valve (open ¼)	114	111	-
Property line building (doors closed):			
Right side of building (on pedestrian walkway)	83	79	79
Center of bridge on pedestrian walkway	76	76	73



# Noise Level Testing

Location (East Branch)	Noise Level In Decibels dB(A)		
	6/26/2021	7/21/2021	8/3/2021
Front of building (Doors closed)	65	-	-
Rear of building (in front of air intake louvers)	110	-	-

# Noise Level Testing - Comparison

Sounds Of The City	Noise Level In Decibels dB(A)
Whisper	30
Normal Conversation/Laughter	50 – 56
Vacuum Cleaner at 10 feet	70
Washing Machine/Dishwasher	78
Midtown Manhattan Traffic Noise	70 – 85
Motorcycle	88
Lawnmower	85 – 90
<b>Newtown Creek Aeration 08/03/2021</b>	<b>62 – 91</b>
Train	100
Jackhammer/Power Saw	110
Thunderclap	120
Stereo/Boom Box	110 – 120
Nearby Jet Takeoff	130



# Noise Reduction Strategies

Install silencers on the blow off pipe for all blowers

- Design Completed
- Preconstruction meeting: 8/30/2021
- Estimated Construction Completion: 11/01/2021

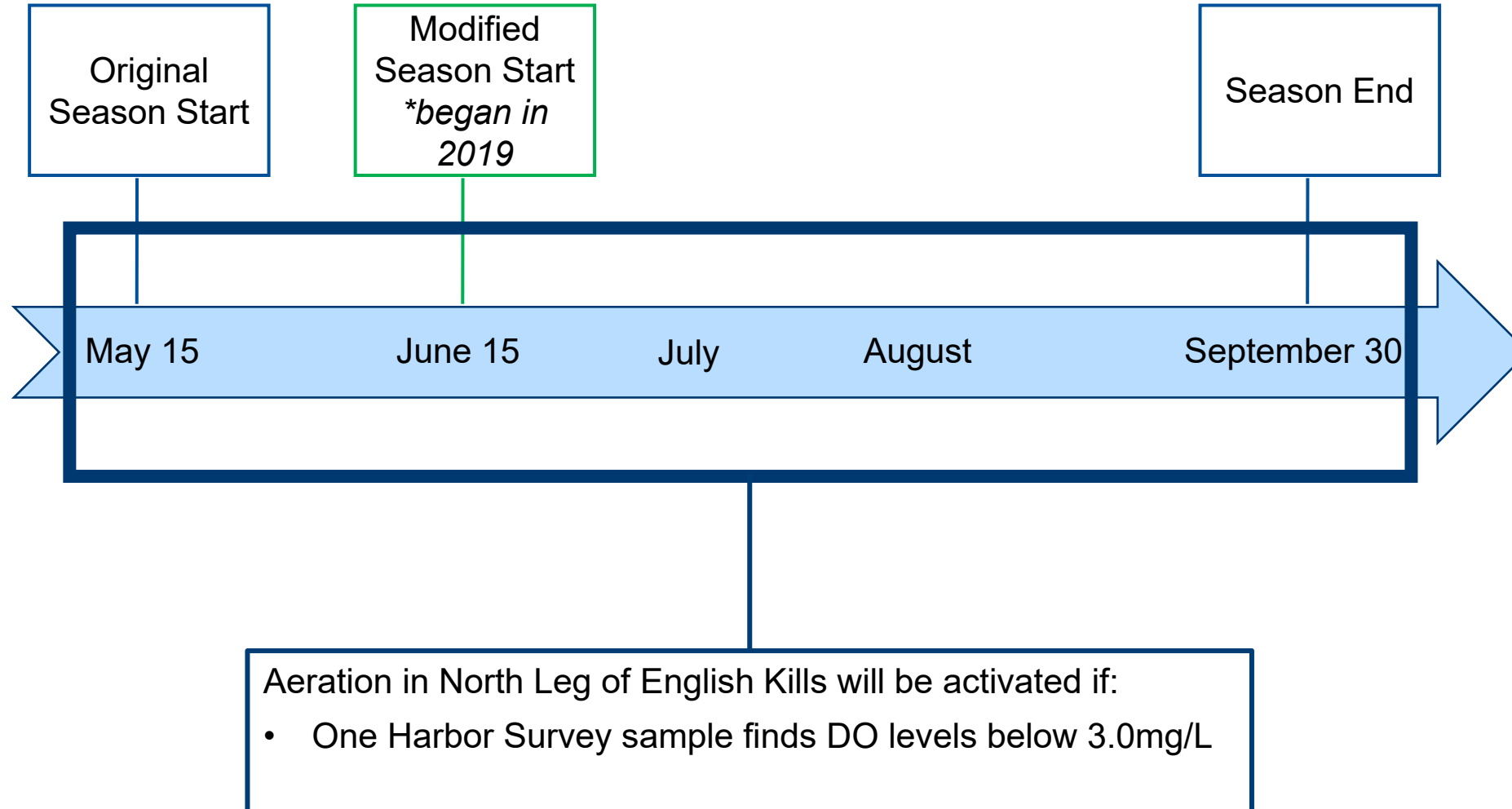


# Background



- DEP deployed diffused aeration to improve dissolved oxygen (DO) levels in Newtown Creek.
- Two in-Creek aeration systems
  - English Kills (orange and red) **2014**
  - East Branch (yellow and green) **2018**
- Target DO level of 3 mg/L (95% of the time)
- DO drivers
- Seasonal Operation
  - May 15 – Sept. 30, bi-weekly sampling
  - 2019 Modified: June 15 - Sept. 30, weekly sampling

# Augmented Monitoring Program Triggers

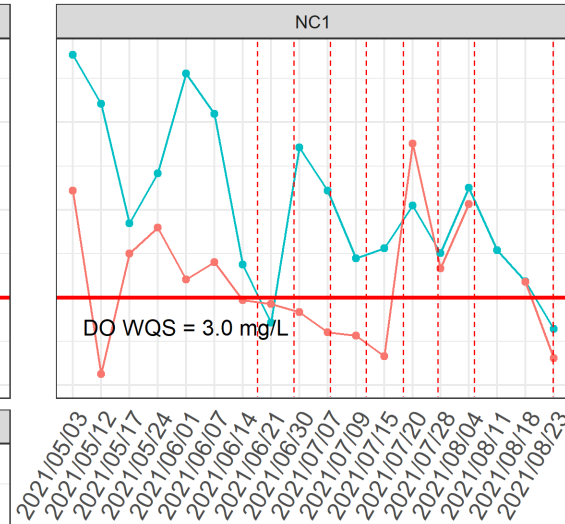
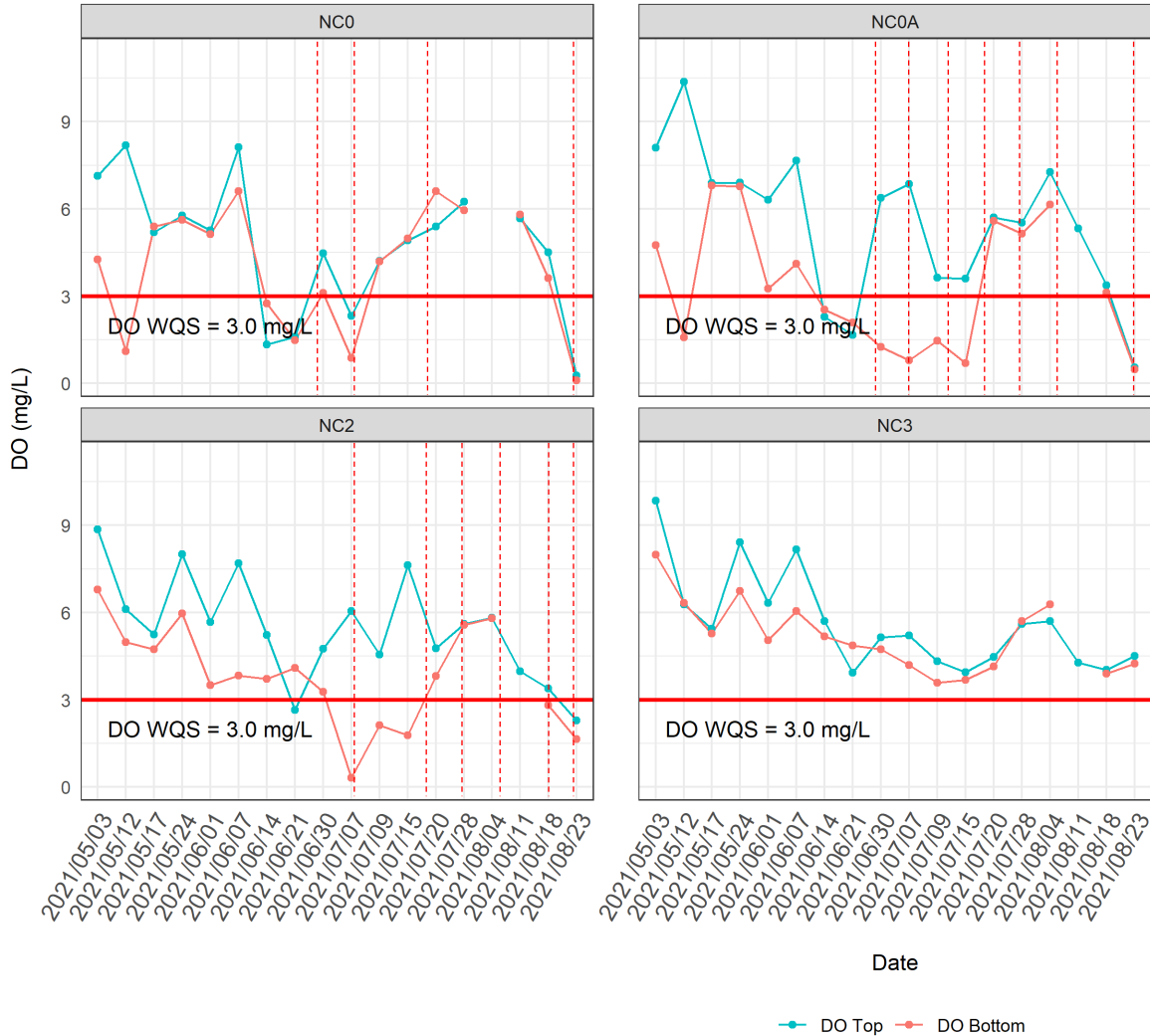




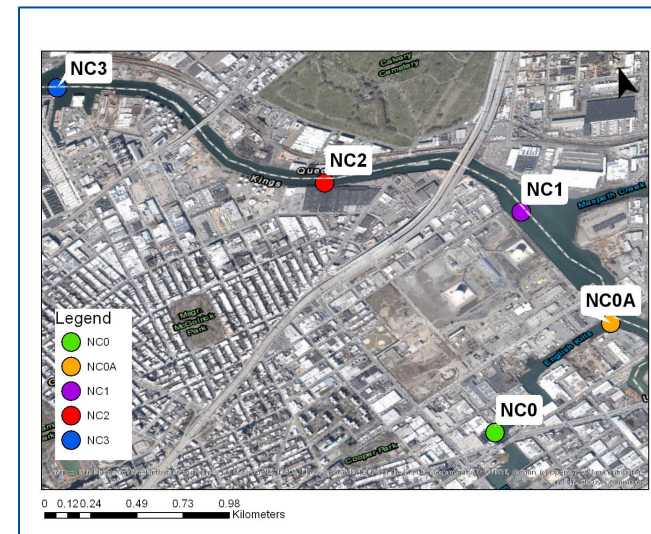
# Dissolved Oxygen

## 2021 Data

Dissolved Oxygen 2021



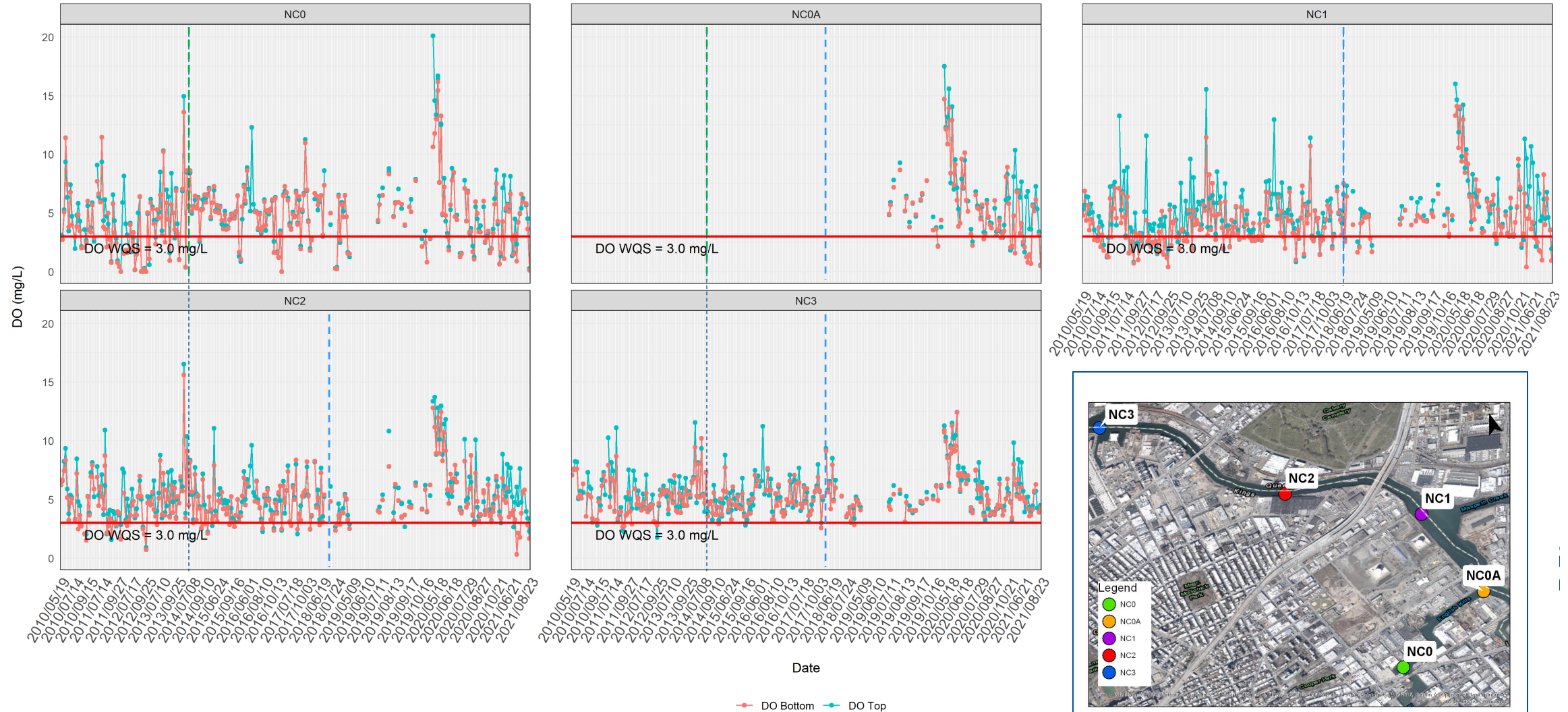
- Instances of low dissolved oxygen correspond to algal blooms and aeration system breakdown.
- The system has worked to eliminate instances of low DO.



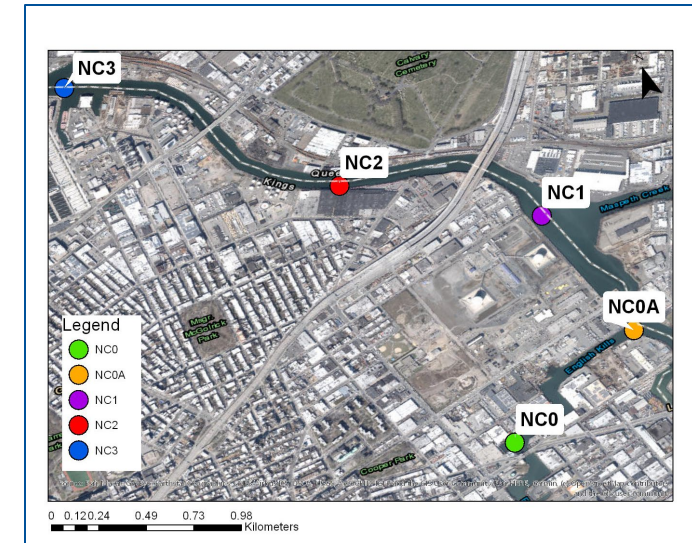
# Dissolved Oxygen

## Temporal Trends 2010-2021

Dissolved Oxygen 2010-2021



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# System Repairs

## Repair + Maintenance Project

- New contract dedicated to NC aeration lines
  - 3-year contract, \$ 687,995.00
  - Start date: 4/8/2019
- Summary Repairs:
  - Repaired the 6-inch flange connections on East Branch.
  - Repaired broken diffusers Assisted with the blower issues at both English Kills and East Branch.
  - Replaced broken diffusers at the north end of English Kills.

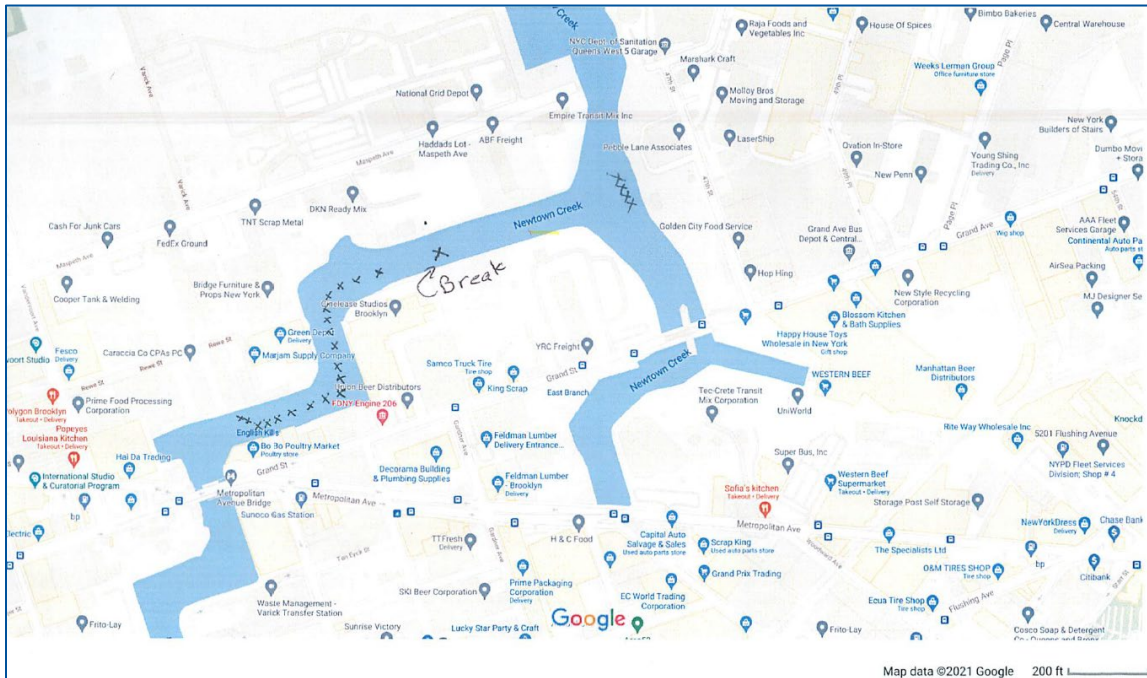




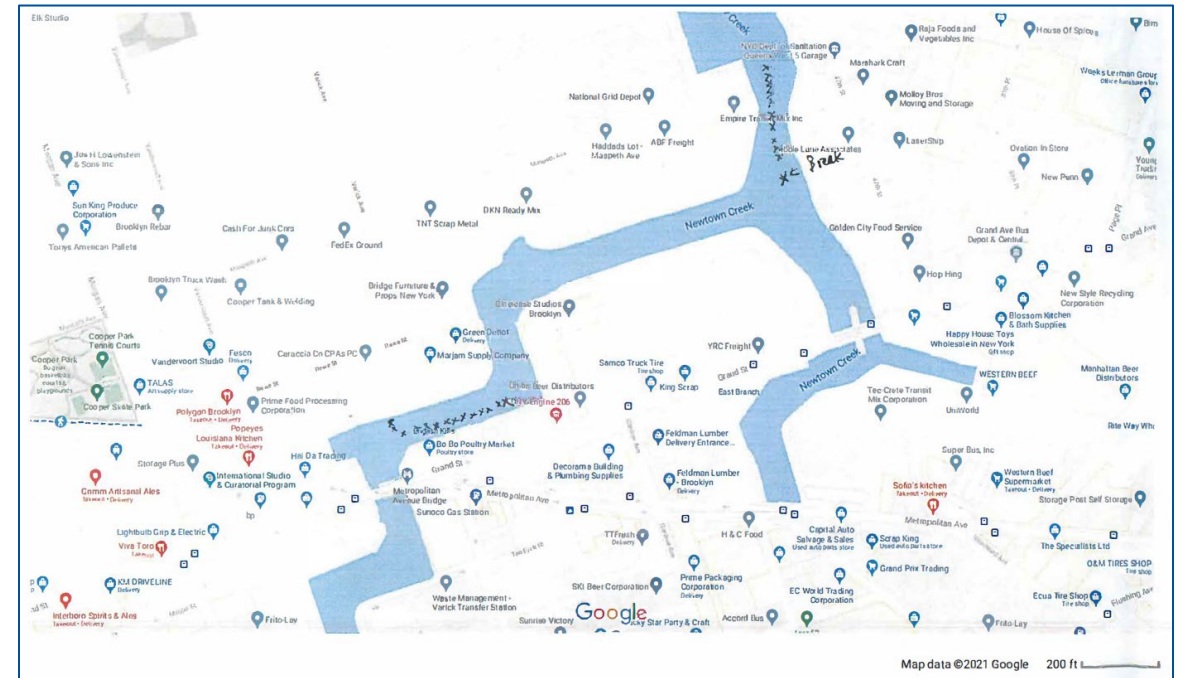
# System Repairs

## System Line Diffusers and Breaks

7/20/2021

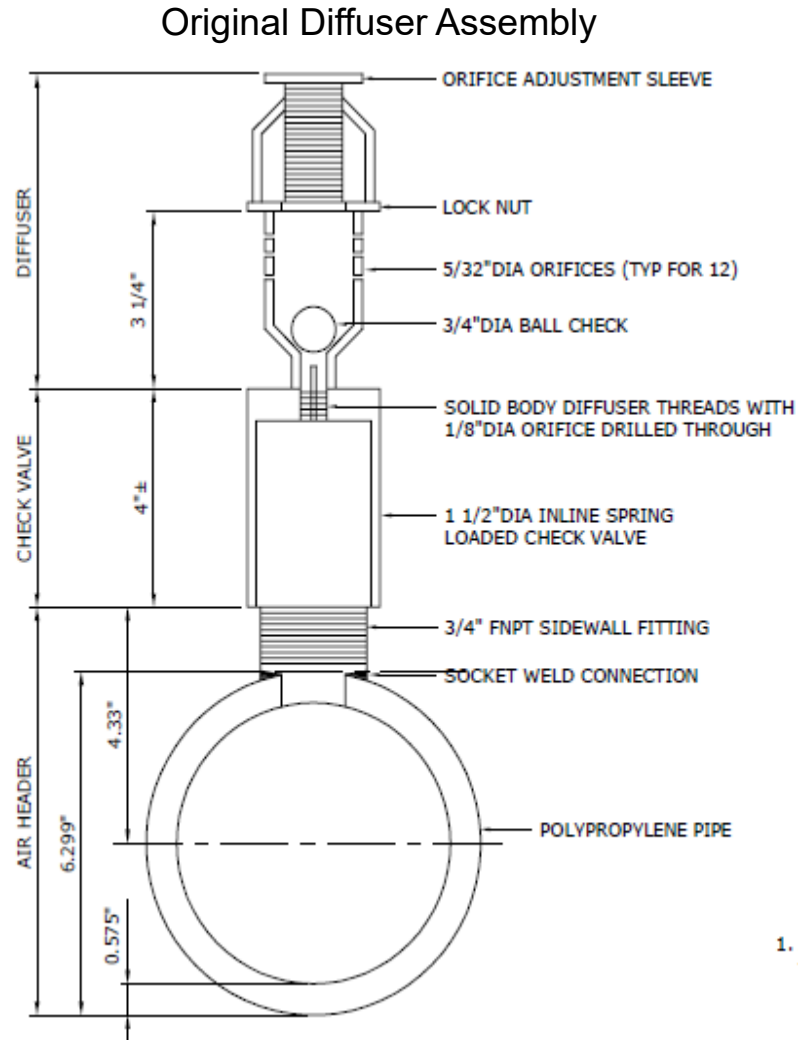


8/18/2021

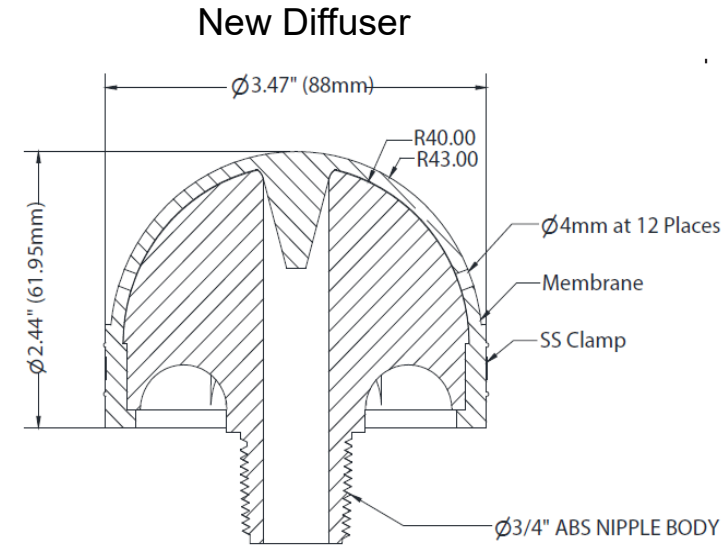


# System Repairs

## Diffuser Improvement



1.



English Kills South Aeration Line looking north towards in front of Bayside Fuel

# System Impacts

- Design Challenges
  - Continuous Operation
  - System Design and Boat traffic
  - Blower Design Issues
- GHG (annual estimate): **25,356.0 Kg CO2**
- Estimated Long term operation cost

System overhaul including repairs and replacements English Kills	\$500,000.00
System repairs and replacements East Branch	\$300,000.00
Line maintenance per season	parts \$3,954.62, labor \$318,997.5
Blower maintenance per season	labor \$23,779.36
Noise reduction cost English Kills	\$54,736.33

# Questions?

