

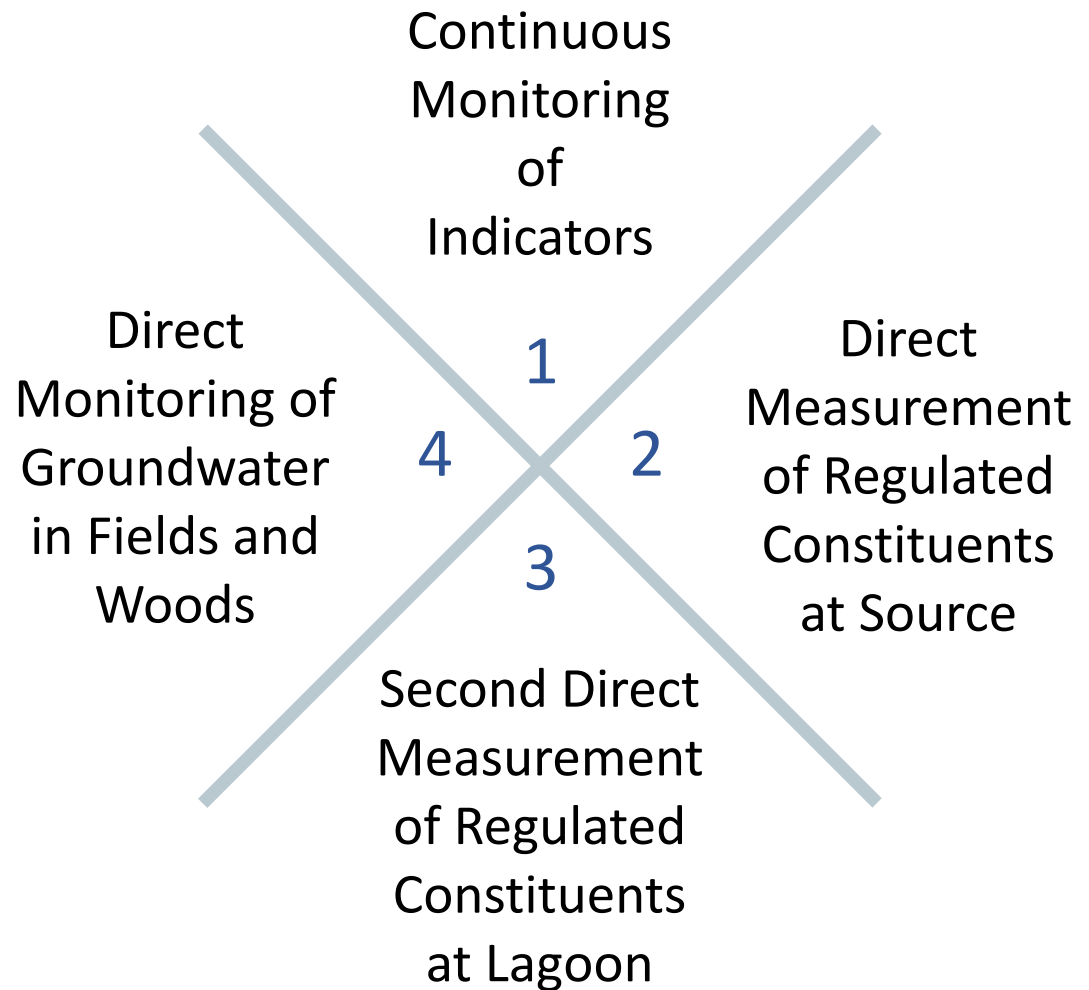
Allen Harim & ANSRWRF

Operations Permits



Monitoring Program

Four Prong, Redundant Approach to Maintain Quality



Key Constituents

10
ppm

Nitrogen

Concentration
Reaching
Groundwater =
**Allowed in Drinking
Water**

20
col/.1 L

Fecal Coliforms

Concentration In
Discharge =
**Allowed on Golf
Courses & Parks**

10
ppm

BOD

Concentration in
Discharge =
**Allowed in
Streams**

10
ppm

TSS

Concentration In
Discharge =
**Allowed on Sports
Fields**



INTENT

Monitor indicator constituents that can be measured continuously as an **early warning system**



METHOD

Metering & Monitoring building at Allen Harim on their effluent line directly after the treatment plant discharge

Prong 1

Continuous Monitoring of Indicators

Some regulated constituents cannot be measured in real time, so Allen Harim & Artesian elected to devise a system which uses indicators as continuous checks for abnormalities and reports back to both company's SCADA systems



INTENT

Direct measurement of regulated parameters leaving the Allen Harim Site

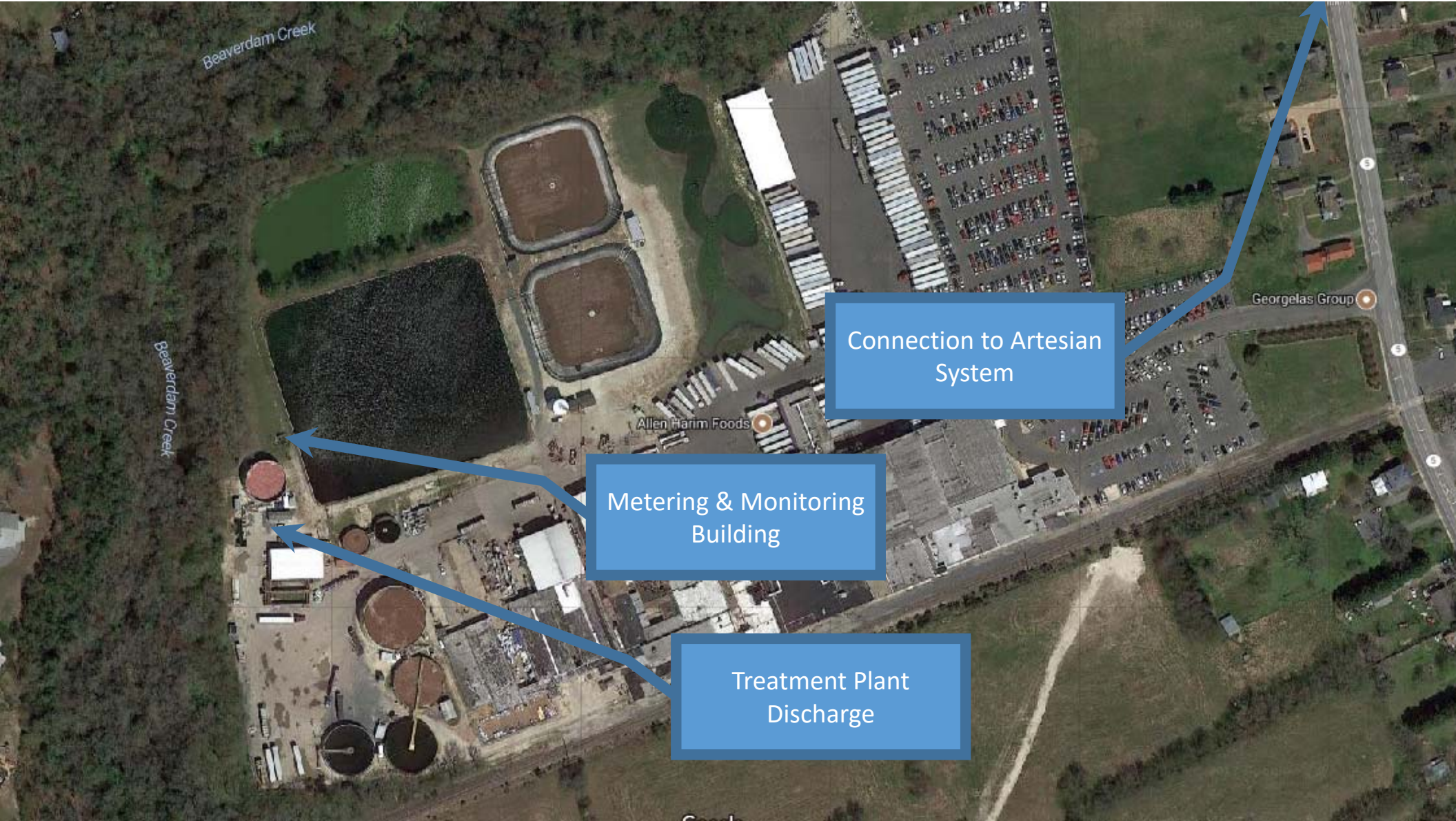
METHOD

Regular composite and grab samples taken at Allen Harim. Artesian is authorized to take additional samples at any time

Prong 2

Direct Measurement of Regulated Constituents at Source

Composite samplers, grab samples and other direct measurements of regulated constituents will be sent to an independent, EPA certified 3rd party lab for analysis with results sent directly to Allen Harim and Artesian from the lab.



Beaverdam Creek

Beaverdam Creek

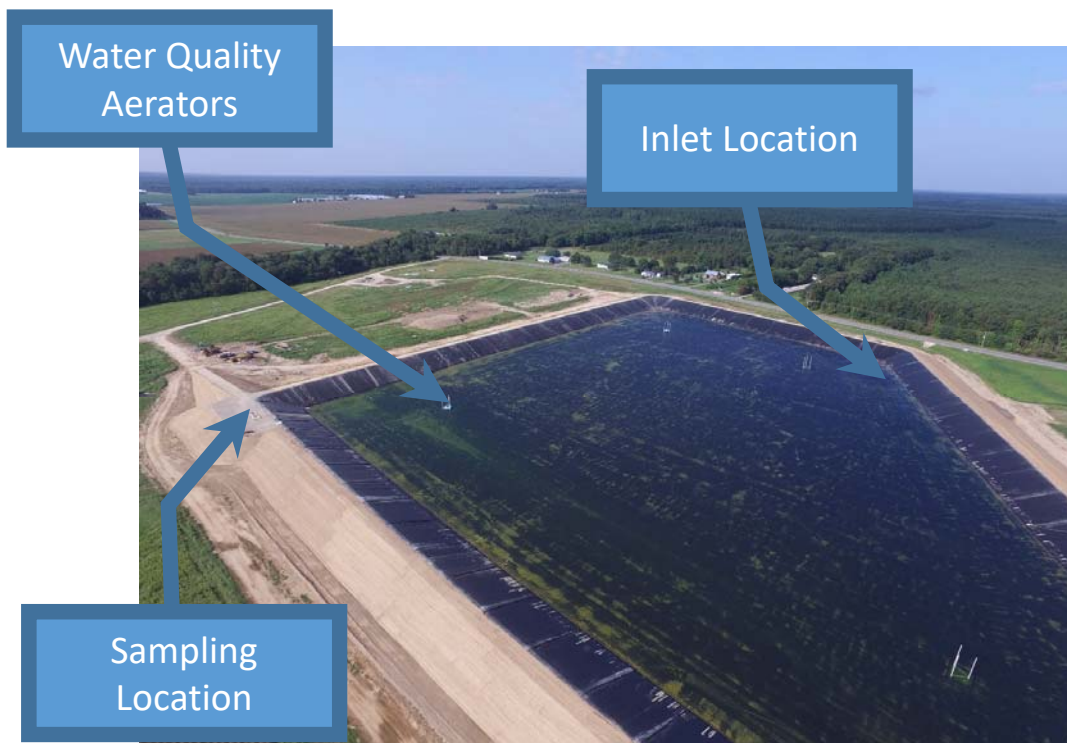
Allen Harim Foods

Georgelas Group

Connection to Artesian System

Metering & Monitoring Building

Treatment Plant Discharge



INTENT

Second direct measurement of regulated constituents to verify no change in water quality prior to spray

METHOD

Routine samples taken by Artesian Wastewater Operators and tested by an EPA certified 3rd party lab

Prong 3

Verification of Effluent Quality After ANSRWRF Lagoon

Additional sampling beyond what is called for in the regulations will be conducted to verify that there has been no change in water quality since leaving Allen Harim prior to spray effluent being pumped from the ANSRWRF lagoon to the fields.



INTENT

Check that uptake by crops and trees is proceeding in accordance with agronomic expectations

METHOD

Array of groundwater monitoring wells, lysimeters and pizometers in the fields and woods

Prong 4

Verify Plant Uptake by Crops and Trees

Ultimately successful operation of ANSRWRF should be judged by the quality of the groundwater under its influence. Regular sampling across the spray application areas, analyzed by a third party lab, will be used to check this.



Corrective Tools: Allen Harim

Problems detected at any of the monitoring locations triggers corrective action which may consist of any or all of the following:



DIVERSION

10 million gallon lagoon at Allen Harim



TREATMENT CHANGES

Adjust process at Allen Foods



CESSATION OF SPRAY

Excess capacity at ANSRWRF allows for holding effluent



SPRAY VOL REDUCTION

Use excess land to reduce spray volume per acre



ADDITIONAL FIELDS

Additional fields have been permitted



TEMPORARY TREATMENT

Mobile treatment units installed at ANSRWRF

Lined Diversion Lagoon



Emergency Discharge to Diversion Lagoon from Metering & Monitoring Building

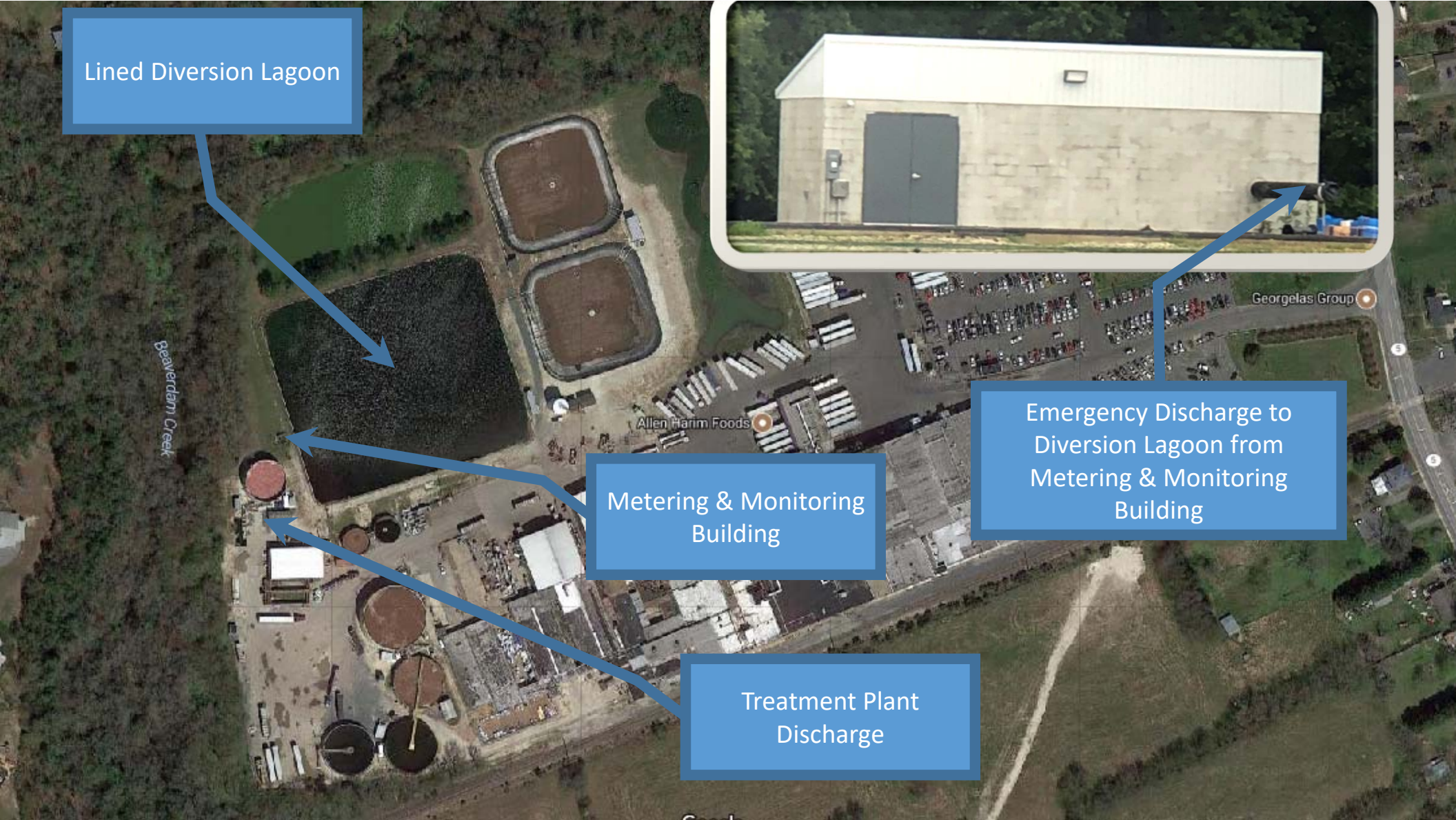
Metering & Monitoring Building

Treatment Plant Discharge

Beaverdam Creek

Allen Harim Foods

Georgelas Group



Corrective Tools: ANSRWRF

Problems detected at any of the monitoring locations triggers corrective action which may consist of any or all of the following



DIVERSION

Multi-million gallon lagoon at Allen Harim



TREATMENT CHANGES

Adjust process at Allen Foods



CESSATION OF SPRAY

Excess capacity at ANSRWRF allows for holding effluent



SPRAY VOL REDUCTION

Use excess land to reduce spray volume per acre



ADDITIONAL FIELDS

Additional fields have been permitted



TEMPORARY TREATMENT

Mobile treatment units installed at ANSRWRF for chlorination, filtration etc.



ANSRWRF Daily Operations

- System managed by a programmable control system
- Multiple alarms check for issues continuously
- Calculations based on rainfall, crop age, type of crop etc. for each month will be used to adjust spray rates based on real world conditions



ANSRWRF Daily Operations

- Effluent will be sprayed under supervision of a licensed wastewater operator
- Records of all results, flows, and other data will be maintained and submitted to DNREC as required by permit
- Spray equipment will be inspected as part of daily operations
- Aerators will maintain wave action to reduce algae formation and discourage mosquitos

