



Hightower Road Landfill Update:

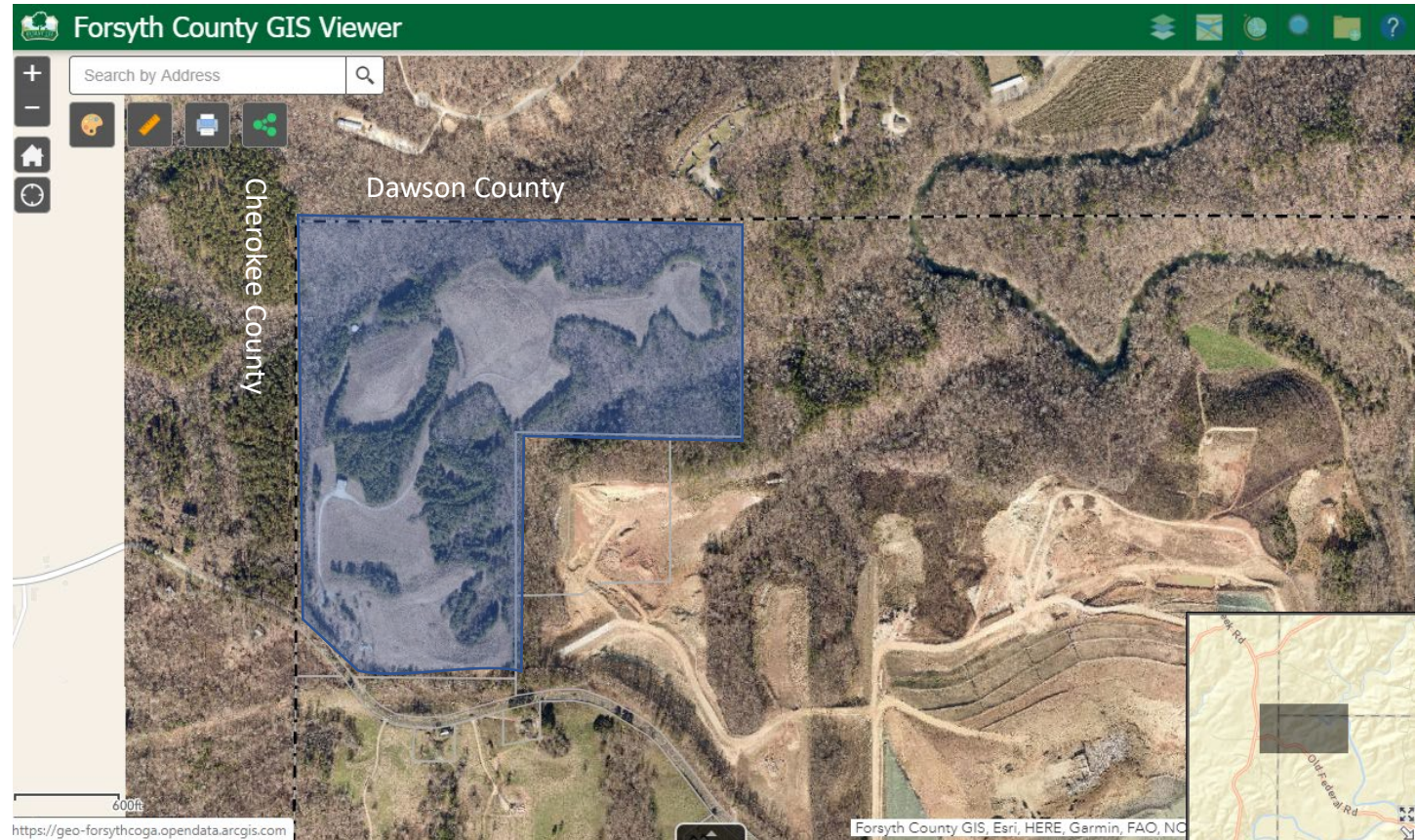
Methane Remedy
Groundwater Remedy

Public Information Session

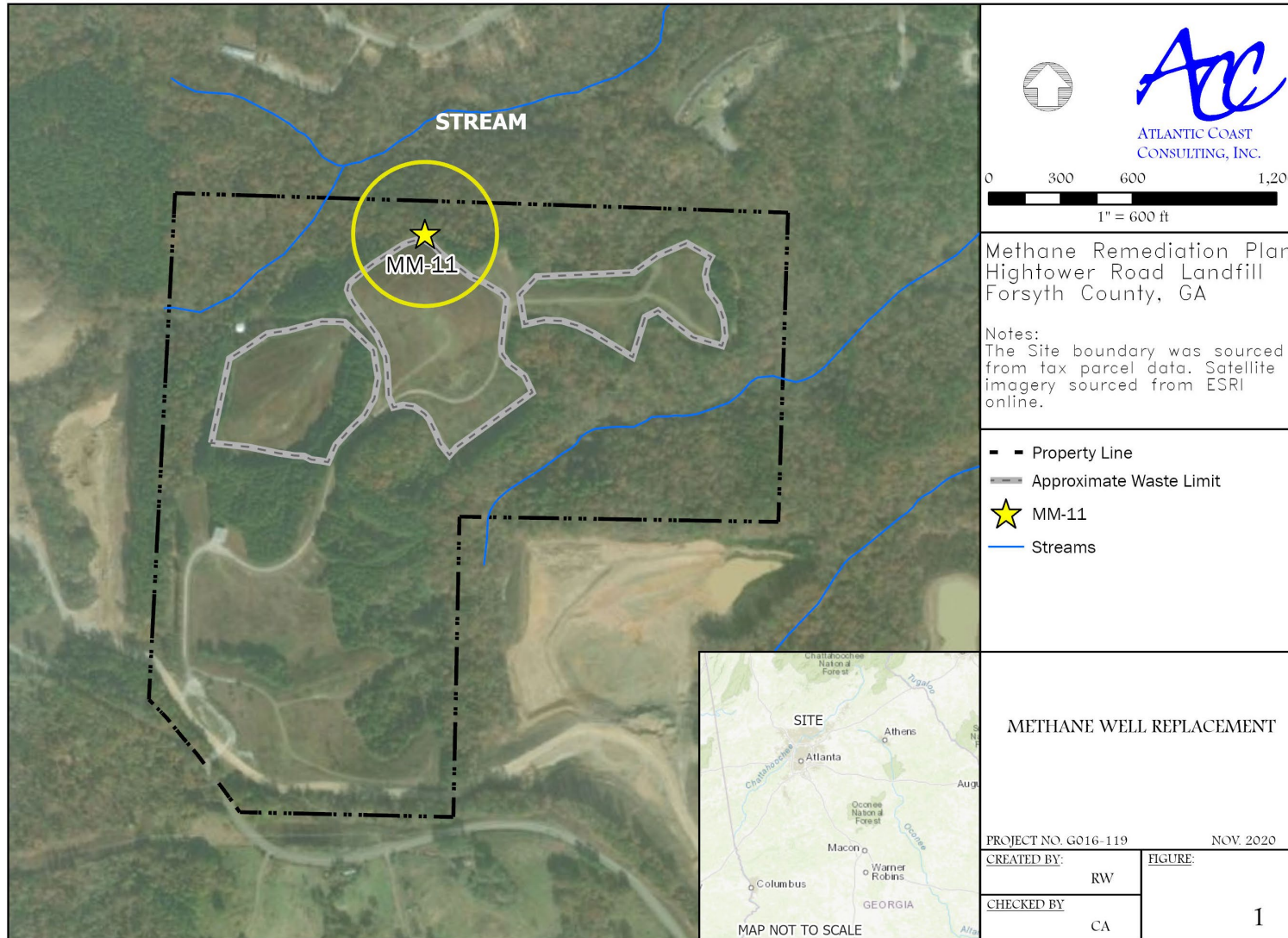
December 2, 2020

History/Location

- Hightower Landfill is in the northwest corner of the County, off Old Federal Road. It is a closed municipal solid waste (MSW), construction and demolition (C&D) waste facility. Groundwater monitoring began in 1994. Site was fully closed in 1999 and will be in post-closure monitoring until at least 2029.
- Methane Remediation Plan is in effect:
 - ❖ Methane well MM-11 has gas concentrations above standards.
- Groundwater Corrective Action Plan (CAP) is in effect:
 - ❖ Current Remedy is monitored natural attenuation (MNA) supplemented with out-of-refuse landfill gas vent trenches;
 - ❖ This CAP requires groundwater concentrations above protection standards to be contained within permitted boundary.



Methane Issue:



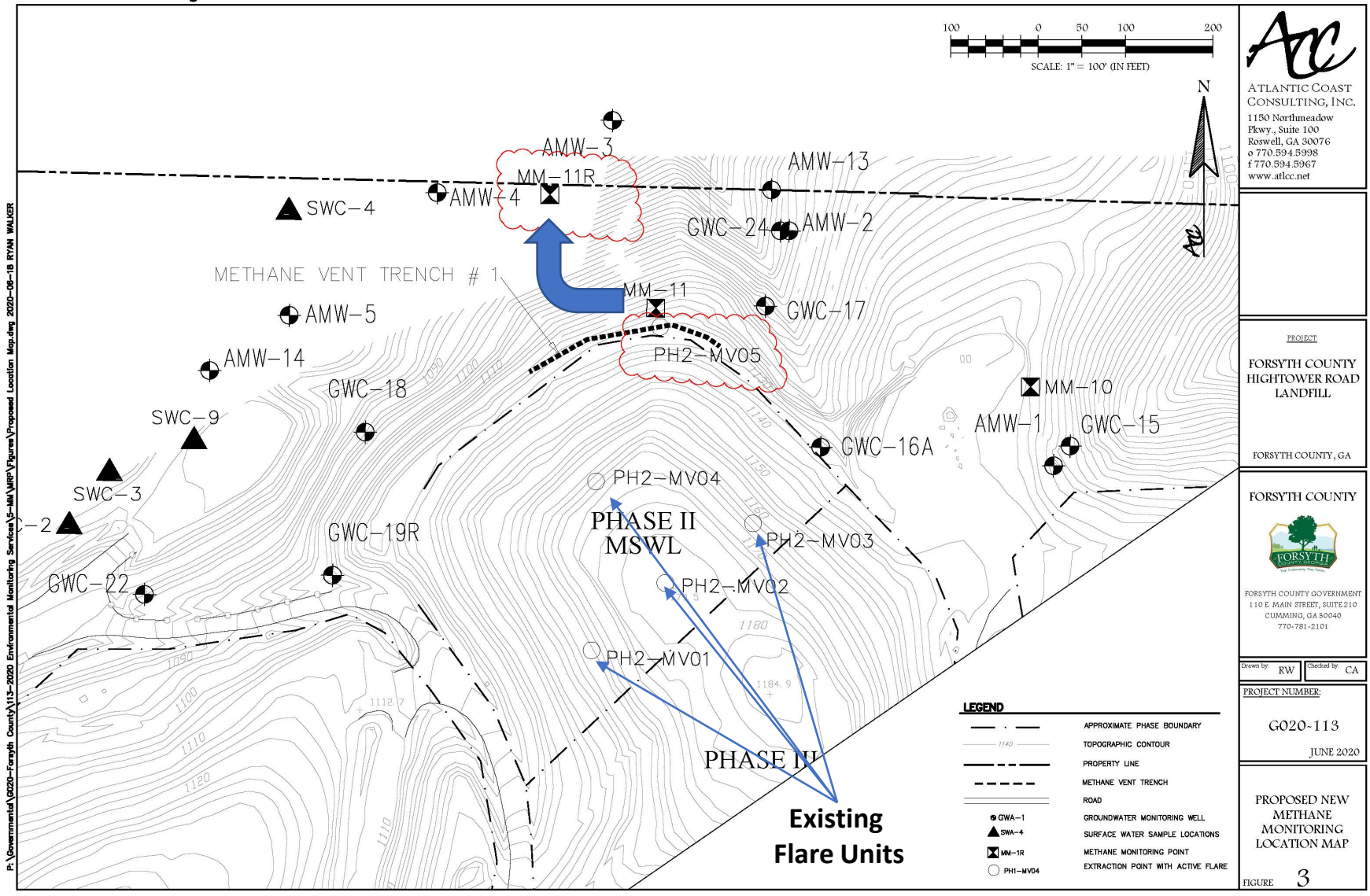
Note:

- MM-11 is the methane well above standards
- Dashed-dot lines indicate approximate phases of MSW landfill



Methane Remedy

- Relocate MM-11 to the northern property boundary.
- Upgrade existing vent trench #1, located along the toe of Phase II, to active extraction with a solar-powered flare.
- The active extraction remedy has already been implemented at other areas of the landfill and approved by EPD.
- Complete by end of December 2020 to comply with GA solid waste rules.



Methane Outcomes

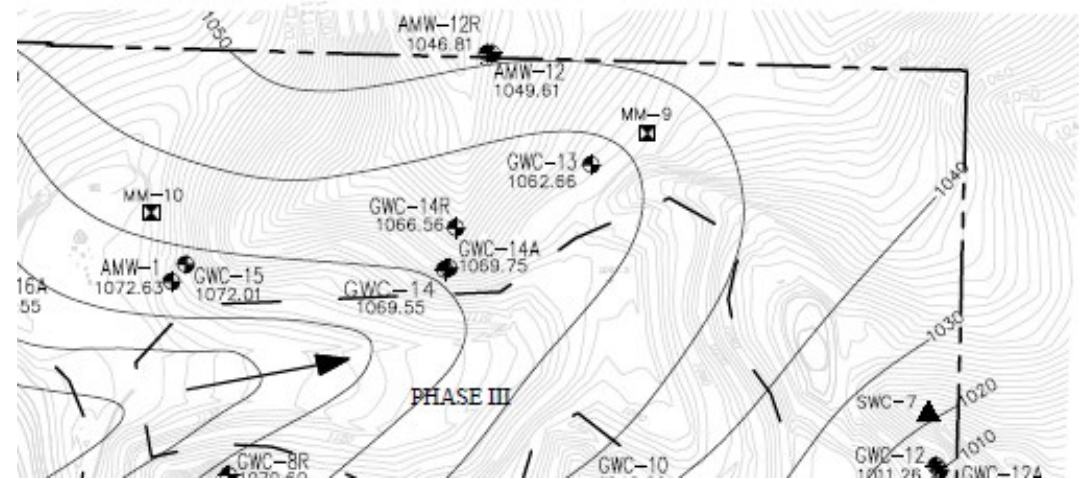
- Move methane well MM-11 to the northern property border to monitor conditions at the compliance boundary.
- Active flaring of vent trench #1 would remove more landfill gas than passive venting and reduce methane migration.
- The removal of landfill gas may also improve groundwater quality at nearby wells.



PHOTOGRAPH OF EXISTING FLARE UNIT

Groundwater Remedy

- Recent groundwater sampling indicates concentrations above protection standard at property boundary:
 - AMW-12R: Perchloroethene (PCE) 13 micrograms per liter –ug/L (protection standard is 5 ug/L),
 - AMW-12: Trichloroethene (TCE) 90 ug/L and PCE at 48 ug/L (protection standard is 5 ug/L).
- Due to these protection standard exceedances near the property boundary, an active treatment of groundwater is being implemented.
- Remedial options were evaluated based on site-specific conditions and an effective, yet cost-efficient groundwater treatment remedy is being pursued that involves a chemical oxidation process. The remedy will complement existing measures already implemented (Landfill Gas Venting and MNA).

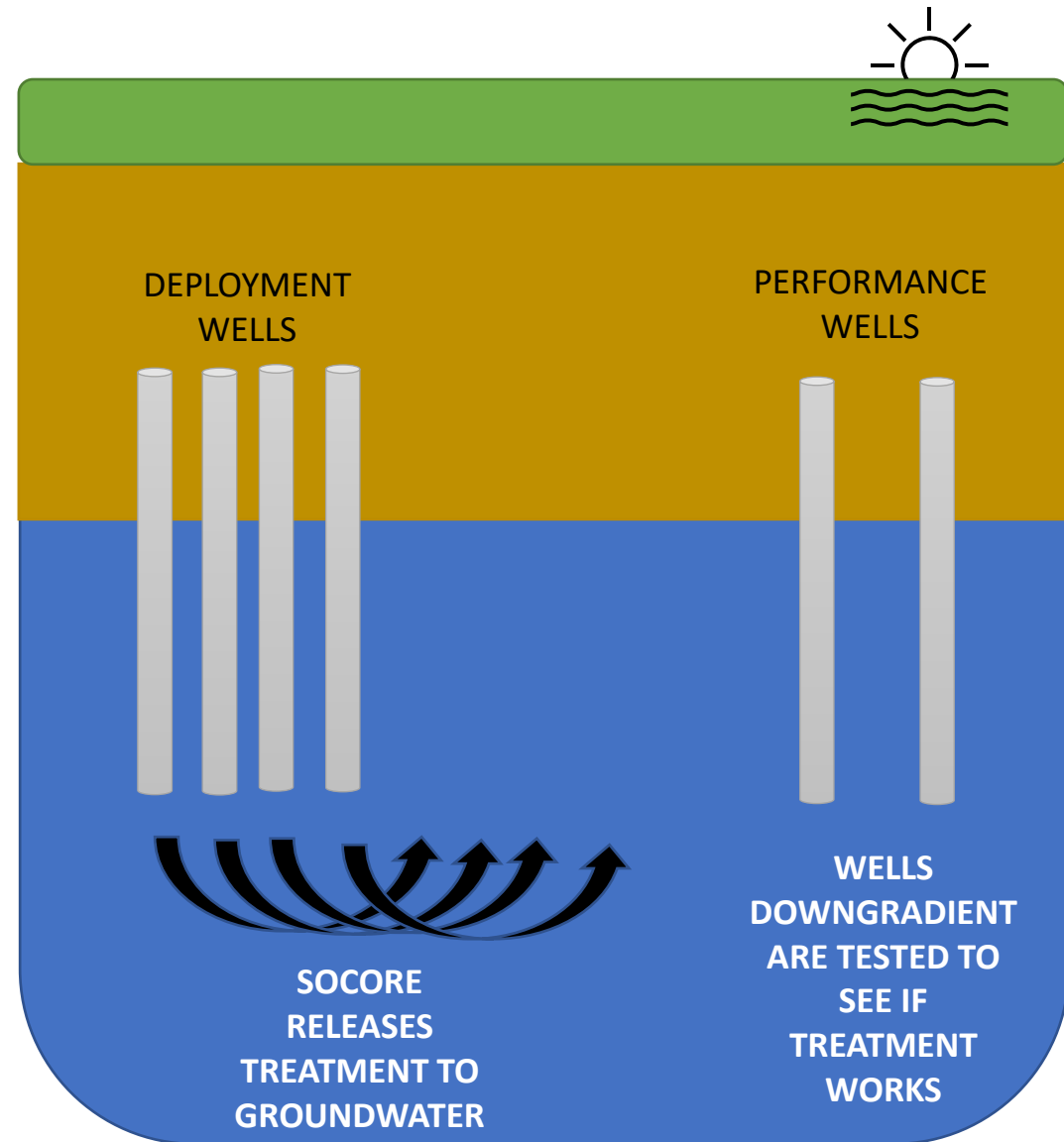


Work will be conducted to enhance effectiveness of the groundwater Corrective Action Plan.



Groundwater Remedy

- Perform Pilot Test to evaluate performance.
- Install 4 deployment wells near northeast property boundary to remediate volatiles in groundwater.
- Chemical destruction of volatiles in groundwater using *Sustained Oxidation and Controlled Oxidant Release Encapsulants* (SOCORE) placed in new wells.
- Groundwater testing pre- and post-SOCORE deployment to determine treatment effectiveness.



Groundwater Remedy Outcomes

- Addition of chemical oxidant SOCORE appears to be an effective, and efficient process to reduce volatiles in groundwater at property boundary.
- A reduction of groundwater volatiles to levels below protection standards would maintain regulatory compliance and contain remaining constituents within the permitted boundary.
- Because the SOCORE technology is a cost-efficient approach, it can be economically applied to other areas of the landfill, if it were required in the future.



Next Steps

- Methane:
 - Install MM-11R at northern property line.
 - Install solar powered flare at selected vent trench location.
- Groundwater
 - Obtain EPD Underground Injection Control permit.
 - Install 4 deployment wells near AMW-12/12R for SOCORE deployment and deploy product.
 - Conduct performance testing of 4 new wells and nearby wells for 1 year.
 - Determine pilot test effectiveness based on this sampling.

