Geosyntec consultants

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144
PH 678.202.9500
FAX 678.202.9501
www.geosyntec.com

February 22, 2019

VIA EMAIL

Richard Dunn, EPD Director
c/o David Hayes
Response and Remediation Program
Land Protection Branch
Georgia Environmental Protection Division
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
David.Hayes@dnr.ga.gov

Subject: SoGreen and Parramore Fertilizer Sites
Semi-Annual Progress Report No. 1 required under Consent Order No. EPD-VRP-015

Dear Mr. Hayes:

Geosyntec Consultants, Inc. (Geosyntec) is pleased to submit this report for your review to satisfy the requirements in Paragraphs 3.a and 4.a of Consent Order EPD-VRP-015 (the "Consent Order"). The Consent Order requires submission of a semi-annual progress report regarding the SoGreen and Parramore Fertilizer Sites (HSI Nos. 10142 and 10143, respectively), in accordance with Section 12-8-107(b) of the Georgia Voluntary Remediation Program (VRP) Act. The following letter report provides a summary of activities completed during the period from August 22, 2018 through February 22, 2019, as well as a projection of activities for the period from March 2019 to August 2019. In addition, Geosyntec has reviewed EPD's October 31, 2017 comment letters on the SoGreen and Parramore Fertilizer Site (PFS) Voluntary Investigation Remediation Plans (VIRPs) and provides a response to each set of comments as enclosures to this report.

ACTIVITIES COMPLETED THIS PERIOD

- The Consent Order Respondents have agreed that Gerdau will take the lead on directing the work performed thereunder. Gerdau has transferred technical project management responsibilities to Geosyntec for the purposes of completing the VIRPs for both SoGreen and PFS. Geosyntec's registered professional geologists and engineers are now overseeing the implementation of the VIRPs in accordance with the provisions, purposes, standards, and policies of VRP Act. Because this transition was in progress and ultimately completed

during this period, some of the activities described below were completed by the former project consultant, Wood Environment & Infrastructure Solutions Inc. (Wood). Geosyntec will be managing all such project management responsibilities on a going forward basis.

- Gerdau timely commenced efforts to obtain access from various parties in order to implement the SoGreen Site Hydrology Evaluation on the relevant parcels. The Hydrology Evaluation, specifically as it relates to the Landfill Corner, will require access to property that Gerdau understands to be owned by Tift County, the Reinhardt Estate, and CSX. Shortly after the Effective Date of the Consent Order, Gerdau's attorneys contacted representatives of Tift County and the Reinhardt Estate concerning access, and Wood submitted an access application to CSX. CSX provided questions about certain details of the access request, and Wood provided responses. Going forward, Geosyntec is managing the CSX access application process on Gerdau's behalf. With respect to the County and the Reinhardt Estate, after a number of telephonic and written communications after initial contacts, Gerdau's attorneys had productive, encouraging meetings on December 11, 2018 with representatives to discuss access. Access discussions with Tift County, the Reinhardt Estate, and CSX are ongoing.

- On October 19, 2018, Gerdau submitted to EPD the Consent Order-required cost estimate to complete the work proposed in Section 5 of the VIRPs. Subsequently, EPD requested additional detail on the development of the cost estimate, and Gerdau, through its attorneys, provided that additional detail. Gerdau also provided and obtained EPD acceptance of a financial assurance mechanism in the form of a letter of credit issued by Citibank to reflect all costs identified in the cost estimate. The cost impact of the transition of technical project management responsibilities to Geosyntec is expected to be marginal, with costs remaining well within the financial assurance provided to EPD.

- Soil sampling on the Railroad Parcel portion of the PFS and the Barren Area Parcel portion of the SoGreen Site, as described in the PFS and SoGreen Site VIRPs, is complete. Laboratory analysis is underway. In accordance with the Consent Order and guidance received from EPD's Mr. Will Lucas by email, analytical data findings will be presented in the next semi-annual progress report.

PROJECTION OF ACTIVITIES FOR THE NEXT PERIOD

- Geosyntec expects to report the final validated results and evaluation of the above-described soil sampling on the Railroad Parcel and Barren Area Parcel to EPD in the next semi-annual progress report.

- Gerdau anticipates receiving access for the SoGreen Site Hydrology Evaluation from Tift County and the Reinhardt Estate in the next semi-annual period and is hopeful that it will also receive access from CSX in the next period.

- Gerdau is also evaluating potential adjustment to the precise scope of the SoGreen Site Hydrology Evaluation—*e.g.*, potential changes to the placement of certain gauging/sampling locations and the potential addition of analytes that may be indicative of landfill leachate. The cost impact of any such adjustments is expected to be marginal, with costs remaining well within the financial assurance provided to EPD.

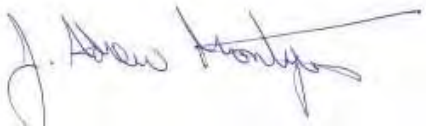
- Subject to obtaining access, Geosyntec anticipates beginning the SoGreen Site Hydrology Evaluation that is described in the SoGreen Site VIRP in the next semi-annual period, in order to evaluate whether either the Landfill Plume or the Railroad Plume emanate from the SoGreen Site based on the data collected. We expect to report the results of this evaluation to EPD in the second semi-annual progress report.

- At this time, we do not anticipate any issues with performance of the work under the VIRPs.

CLOSING

Please contact Mr. Andrew Montgomery at (678) 202-9512 if you have any questions concerning this submittal.

Sincerely,



J. Andrew Montgomery, PE (GA)
Senior Principal

Gregory P. Roush, PG (GA)
Senior Principal

Enclosures

Copies to: William Lucas, EPD
Luis Nieves, Gerdau
Max Zygmont, Kazmarek Mowrey Cloud Laseter LLP

Geosyntec consultants

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144
PH 678.202.9500
FAX 678.202.9501
www.geosyntec.com

February 22, 2019

Mr. William H. Lucas, III
Response and Remediation Programs
Land Protection Branch
Georgia Environmental Protection Division
2 Martin Luther King Jr. Drive, SE
Suite 1054 East Floyd Tower
Atlanta, Georgia 30334

Subject: Response to October 31, 2017 EPD Comments
SoGreen Former Waste Pile Site

Dear Mr. Lucas:

In conjunction with the submittal of the Voluntary Remediation Program (VRP) February 2019 Progress Report #1 for the above-referenced site (SoGreen), this letter provides a response to EPD's October 31, 2017 comments on the Site Voluntary Investigation Remediation Plan (VIRP) dated May 5, 2017.

The VRP investigation will proceed in a step-wise fashion, with the following approach:

- Collect a synoptic round of water level measurements from existing monitoring wells and piezometers, gauge depth and elevation of ponded water in the beaver pond, and utilize a hand-held GPS to survey the boundary of the beaver pond.

- Collect an additional synoptic round of water levels and subsequently breach the beaver dam (access pending) and allow the ponded water to drain. It is anticipated that it may require one to three weeks for the ponded water to completely drain.

- Collect a round of water levels (post dam breach) and sample existing monitoring wells (see attached table and figure).

- Access pending, install new monitoring wells, piezometers, and staff gauges as described in the VIRP and listed on attached table. Collect up to two additional rounds of synoptic water level data from the previously existing and newly installed wells, piezometers and staff gauges.

- Update the conceptual site model (CSM) and revise groundwater sampling plan as needed.

EPD COMMENTS

Comment No. 1:

Section 4.3.1 indicates that five off-site water supply wells were last sampled in 1995. Considering that it has been 22 years since the wells were sampled, please conduct a current well survey to determine if there are any active water supply wells in the vicinity of the site and, if so, sample the wells. In addition, please include a figure that illustrates the distance to the nearest potential human health and ecological receptors (i.e. POE/POD) as required by Item #5 of the VRP Application Form and Checklist.

Response:

Based on a well survey completed in June 2018, no residential drinking water supply wells were identified within a 1.5-mile radius of the SoGreen site. Five water supply wells were identified between a ½-mile and a 1-mile radius. Three wells range in depth from 312 ft to 501 ft below ground surface. The well depth for two wells was not provided; however, one well is located close to one-mile upgradient (southeast) of the SoGreen site and the other well (City of Tifton) was listed as closed. Given the distance from the SoGreen site, depth of the water supply wells, and extent of groundwater impacts associated with the SoGreen site, the potential exposure to impacted groundwater via water supply wells is very low and sampling is not recommended at this time. As the VRP investigation progresses and the CSM is updated, it will be utilized to prepare a figure that illustrates the distance to the nearest potential human health and ecological receptors (i.e. POE/POD) and will be provided in a future VRP progress report.

Comment No. 2:

Please update the groundwater sampling approach in Section 5.3.1 of the VIRP to include a list of the specific monitoring wells proposed to be sampled and rationale for the selection of wells to be incorporated into the site related monitoring plan. EPD requests that this information be provided 45 days prior to the first sampling event.

Response:

The specific wells to be sampled and associated rationale for the baseline VRP sampling event are provided on the attached table and figure. The wells and analyte list for future

groundwater sampling events may be modified based on sampling results and investigations, and will be communicated to EPD prior to additional sampling

Comment No. 3:

The VIRP indicates that one surface water sample will likely be collected to demonstrate that impacted groundwater is not entering the creek. Please provide the specific surface water sampling location that is proposed along with an upstream background sample location. EPD requests that this information be provided 45 days prior to the first sampling event. Depending upon the analytical results, surface water monitoring may need to be incorporated into the above referenced future monitoring plan.

Response:

The initial VRP investigation includes installing new piezometers and staff gauges to evaluate hydrology and groundwater flow near the creek and sampling groundwater in existing monitoring wells. Once these data have been collected, the conceptual site model (CSM) will be updated and potential surface water sample locations will be identified, as necessary.

Comment No. 4:

The VIRP targets MNA as a presumed remedy and, in Section 5.4.2, it is suggested that MNA may be feasible based on review of data collected between 2011 and 2015. More detail is needed to support a presumptive MNA remedy; including a preliminary screening of anaerobic biodegradation processes in accordance with the procedures outlined in EPA's *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater*. Please note that additional remedial alternatives should be considered and evaluated, in the event that MNA is not deemed to be viable.

Response:

As noted in the response to Comment 2 and the attached sampling table, groundwater from select wells will be analyzed for MNA parameters. Once the CSM is updated and cleanup responsibility is determined, the data will be utilized to screen anaerobic biodegradation in accordance with EPA protocol and a focused feasibility may be completed to evaluate potential remedies.

Comment No. 5:

The use of composite soil samples proposed for the area averaging discussed in Appendix D is generally not acceptable to EPD; however, because the proposed approach is consistent with previous approved sampling methods used at this site, EPD will accept the use of composites in this case.

Response:

Comment acknowledged.

Comment No. 6:

EPD recommended, in correspondence to Gerdau dated June 30, 2016, that groundwater samples be collected from existing piezometers located on the landfill property along with the proposed piezometers to be installed north of the SoGreen site. The VIRP indicates that the new piezometers to be installed will be surveyed and the depth to water gauged and indicates that the piezometers on the landfill property will be sampled if property access is granted. However, it is not indicated that groundwater samples will be collected from the piezometers to be installed north of the SoGreen site. EPD recommends that laboratory analyses be conducted to provide additional insight regarding plume migration.

Response:

Gerdau plans to complete the investigation in a step-wise fashion beginning with collecting groundwater and surface water level data to evaluate hydrology and groundwater flow in the northeast corner of the SoGreen site near the landfill. In addition, groundwater from existing monitoring wells will be sampled. Once these data are collected, the CSM will be updated and additional sampling and analysis recommendations or actions will be communicated to EPD.

Comment No. 7:

Section 5.3 and Appendix C provide limited information regarding the construction of the proposed piezometers and monitoring wells. The first progress report should include information regarding the proposed well depths, well screen slot size, and well development method. The document should reference that the wells will be installed in

accordance with EPA SESD Region 4 Guidance, *Design and Installation of Monitoring Wells*, SESDGUID-101-Rl, January 29, 2013.

Response:

The location and approximate depth of proposed piezometers and wells is provided in the attached table and figure. Piezometers and monitoring wells will be installed in general accordance with the above referenced EPA SESD guidance.

Drilling will be performed under the direction of a Georgia-registered Professional Geologist (P.G.) using sonic drilling methods. Each borehole will be advanced using a 4-inch core barrel with a 6-inch outer drill casing. Geosyntec will collect continuous soil cores during drilling. Unconsolidated soils will be field logged and classified in accordance with the Unified Soil Classification System (ASTM D2487-11).

Target screened intervals may be adjusted in the field based on observations during drilling. Generally, wells/piezometers will be constructed as outlined below.

- *Two-inch diameter Schedule 40 PVC riser with a 10-foot PVC slotted screen (0.010-inch) will be installed at each location.*

- *Environmental-grade silica sand (approximately 20/40 mesh size) will be used for filter pack material as screen material. The top of the filter pack in each well will target no more than two feet above the top of the well screen slots. In cases where the borehole extends beyond the target screen interval, the borehole will be backfilled using bentonite up to one foot below the base of the target screen interval, above which filter pack material will be used to set the well at the targeted depth.*

- *Bentonite pellets will be placed above the filter pack; the bentonite seal will generally range in thickness between 2 to 3 feet.*

- *Above the bentonite seal, a high solids bentonite grout (e.g. PureGold®) will be used to seal the annular space from the bentonite seal to within approximately one-foot bgs. A tremie pipe will be used to emplace the grout seal.*

- *The PVC riser will be left with an approximate 2 feet stick up above ground surface and a compression cap will be used to close the top of the well. Well completion will*

consist of a 4-inch square aluminum, and lockable protective casing set in a 4 feet x 4 feet x 4-inch concrete pad. Exact completion details may vary based on conditions specified in final access agreements with off-site property owners.

The wells/piezometers will be developed by the drilling subcontractor until development water is free of visible sediments or three well volumes of water have been pumped from each well. Groundwater quality parameters such as pH, conductivity, temperature, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) will be collected during well development. An attempt will be made to achieve turbidity readings of < 5 nephelometric turbidity units (NTU), but well development may be terminated after no more than two (2) hours at each well.

Comment No. 8:

Please include a milestone schedule, as required by Item #5 of the VRP Application Form and Checklist, as part of each semi-annual progress report.

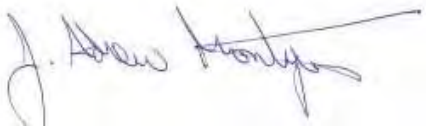
Response:

A milestone schedule is attached and will be updated with each semi-annual progress report.

CLOSING

Please contact Mr. Andrew Montgomery at (678) 202-9512 if you have any questions concerning this submittal.

Sincerely,



J. Andrew Montgomery, PE (GA)
Senior Principal

Gregory P. Roush, PG (GA)
Senior Principal

Attachments

cc: Luis Nieves, Gerdau
Max Zygmont, Kazmarek Mowrey Cloud Laseter LLP

Table 1: Proposed Baseline Groundwater Sampling Locations SoGreen Site

Well_ID	Top Screen Depth (ft bgs)	Bottom Screen Depth (ft bgs)	Area	Parameters	Rationale
PZ-4	3.0	13.0	SoGreen	VOCs	Plume Core
W10A	3.5	13.5	SoGreen Off-Site	VOCs	Downgradient Off-Site
W10B	39.0	44.0	SoGreen Off-Site	VOCs	Downgradient Off-Site
W10C	62.0	67.0	SoGreen Off-Site	VOCs	Downgradient Off-Site and Vertical Extent
W14A	3.5	13.5	SoGreen Off-Site	VOCs, MNA	Downgradient Off-Site Near Creek
W14B	40.2	45.2	SoGreen Off-Site	VOCs, MNA	Downgradient Off-Site Near Creek
W1A-R	8.1	13.1	SoGreen	VOCs, MNA	Upgradient
W1B-R	62.0	72.0	SoGreen	VOCs, MNA	Upgradient
W20A	6.0	16.0	Barren	VOCs	Upgradient Off-Site
W20B	46.0	56.0	Barren	VOCs	Upgradient Off-Site
W29A	5.0	15.0	SoGreen Off-Site	VOCs	Downgradient of 7A/B, CT delineation
W29B	36.0	46.0	SoGreen Off-Site	VOCs	Downgradient of 7A/B, CT delineation
W2A-R	8.1	13.1	SoGreen	VOCs, MNA	Plume Geometry
W2B-R	43.0	53.0	SoGreen	VOCs, MNA	Vertical Extent
W30A	4.0	14.0	SoGreen	VOCs, MNA	Plume Geometry
W30B	46.0	56.0	SoGreen	VOCs, MNA	Vertical Extent
W39A-1	5.0	15.0	SoGreen	VOCs, MNA	Plume Core
W39A-2	15.4	25.4	SoGreen	VOCs, MNA	Plume Core
W7A	6.9	11.9	SoGreen Off-Site	VOCs	Off-Site CT Detections
W7B	38.5	48.5	SoGreen Off-Site	VOCs	Off-Site CT Detections
W9A	2.8	5.8	SoGreen Off-Site	VOCs	Downgradient Off-Site
W9B	40.0	45.0	SoGreen Off-Site	VOCs	Downgradient Off-Site

Notes:

ft bgs: feet below ground surface

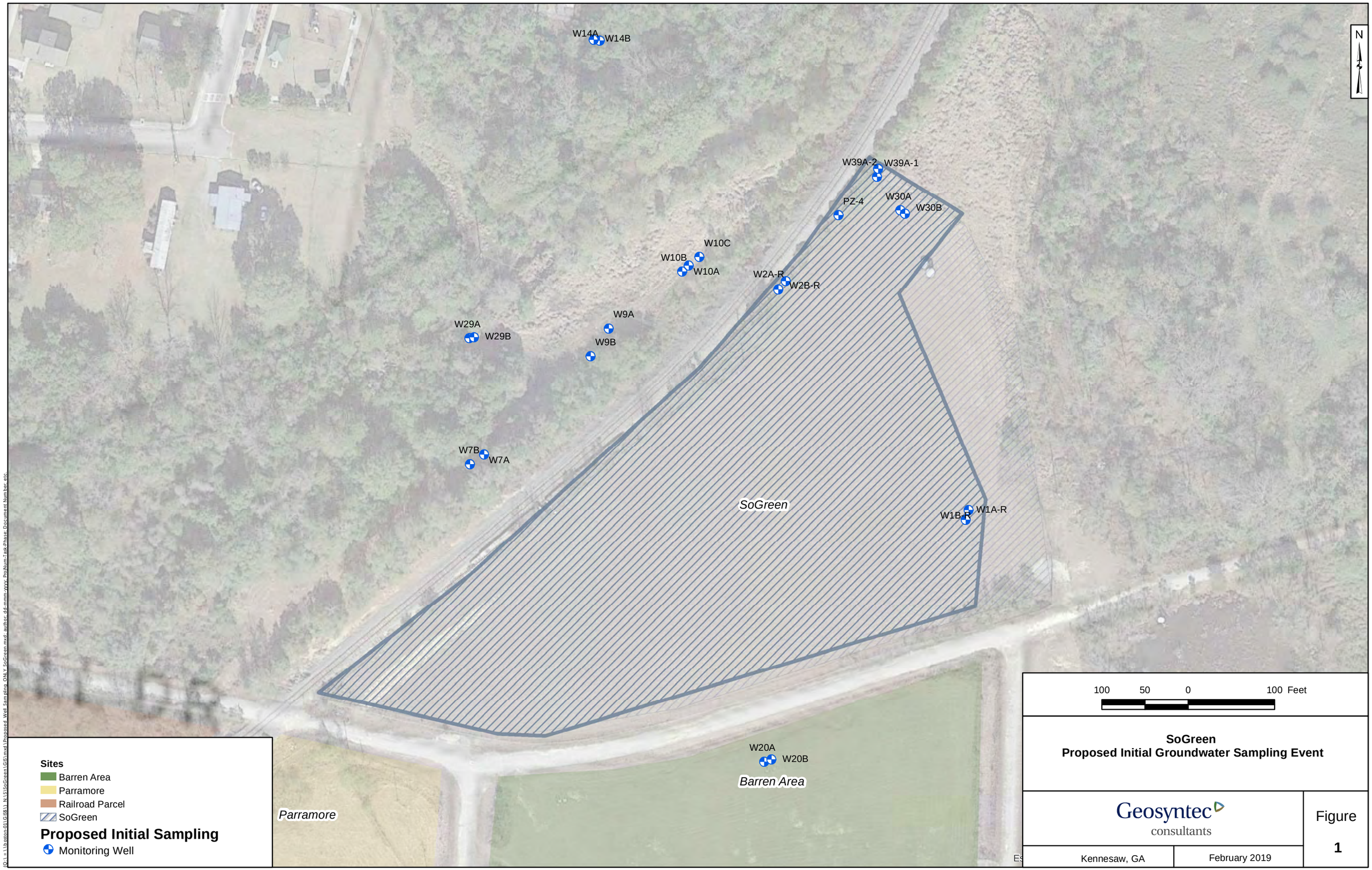
CT: Carbon Tetrachloride

Field parameters (dissolved oxygen, oxidation reduction potential, pH, turbidity, and temperature) will be collected during groundwater sampling

MNA: Monitored Natural Attenuation

MNA parameters include: nitrate, iron (II), sulfate, sulfide, total organic carbon, carbon dioxide, alkalinity, volatile fatty acids, and chloride.

VOCs: Volatile Organic Compunds



(O:_=\\bolton-01\GIS$\) N:\S\SoGreen\GIS\mxd\Proposed Well Sampling ONLY SoGreen.mxd; author; dd-mmm-yyyy; ProjNum-Task-Phase; Document Number; etc.

Table 2: Proposed New Groundwater Monitoring Well and Piezometer Locations SoGreen Site

Well_ID	Top Screen Depth (ft bgs)	Bottom Screen Depth (ft bgs)	Area	Parameters	Rationale
NW-1S*	10.0	20.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NW-2S*	10.0	20.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NW-3S*	50.0	60.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NW-4S*	50.0	60.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NW-5S*	30.0	40.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NW-6S*	30.0	40.0	SoGreen	VOCs	Upgradient of 7 Cluster to Evaluate CT
NP-7S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-8S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-9S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-10S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-11S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-12S	5.0	15.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill
NP-13S	30.0	40.0	CSX Property	Water Level	Evaluate Hydrology Near Landfill

Notes:

ft bgs: feet below ground surface

CT: Carbon Tetrachloride

Field parameters (dissolved oxygen, oxidation reduction potential, pH, turbidity, and temperature) will be collected during groundwater sampling

MNA: Monitored Natural Attenuation

MNA parameters include: nitrate, iron (II), sulfate, sulfide, total organic carbon, carbon dioxide, alkalinity, volatile fatty acids, and chloride.

VOCs: Volatile Organic Compunds

*Wells to be installed and sampled after the baseline sampling event depending on results from W7A and W7B.

SoGreen Site Voluntary Remediation Program Milestone Schedule

Task Name	Q3 '18	Q4 '18	Q1 '19	Q2 '19	Q3 '19	Q4 '19	Q1 '20	Q2 '20	Q3 '20	Q4 '20	Q1 '21	Q2 '21	Q3 '21	Q4 '21	Q1 '22	Q2 '22	Q3 '22	Q4 '22	Q1 '23	Q2 '23	Q3 '23
VRP Consent Order Executed	22-Aug																				
Submit Cost Estimate for VIRP Investigations		22-Oct																			
Provide Financial Assurance		22-Nov																			
Annual Financial Assurance Review & Update					22-Aug				22-Aug				22-Aug				22-Aug				22-Aug
Initiate Off-Site Property Access Requests	5-Sep																				
Horizontal Delineation																					
Complete Barren Area Soil Sampling			22-Feb																		
VIRP Barren Area Soil Sampling Reporting					22-Aug																
Complete Horizontal Delineation									24-Aug												
Hydrology Evaluation																					
Submit SoGreen Hydrology Report					22-Aug																
Vertical Delineation																					
Complete Vertical Delineation*												22-Feb									
Update Groundwater CSM*												22-Feb									
Re-Evaluate Groundwater Remedial Options and Submit Remediation Plan*												22-Feb									
VRP Progress Reporting																					
Submit Semi-Annual Progress Reports			22-Feb		22-Aug		24-Feb		24-Aug		24-Feb		24-Aug		24-Feb		24-Aug		24-Feb		
Submit Compliance Status Report																					22-Aug

Notes:

Indicates completed task

Portion of schedule that is complete

*Required for groundwater if landfill and/or railroad plumes emanate from SoGreen