

Departmental Review
For
Atlantic Wastes Services, LLC Conditional Use
Green Meadows Disposal Facility Site
Map/Parcel
087 001 & 087 002

Atlantic Waste Services has made an application for an AG-3 Conditional Use for a landfill as permitted in Zoning Article 7 Sec. 703 B 12. The application request approval of two parcels, one 750.01 acres and the other 239.28 acres, totaling approximately 989.29 +/- acres. The application states that only 84 acres will be used as a fill area and another 84 acres would be used for roads, containment ponds, and supporting buildings. The current use of the property is a dairy farm with multiple wells used for domestic water supply, livestock and irrigation. There are five mobile homes located on the property, a dairy barn and other supporting structures including containment ponds other ponds for irrigation and a Carolina bay.

The following departmental review is based on the Zoning Ordinance, Screven County Solid Waste Plan, Subdivision Ordinance and Screven County Comprehensive Plan. This review procedure is outlined in the Zoning Ordinance Article 4 Sec. 414 E.

ZONING ARTICLE 4. - GENERAL PROCEDURES.

Sec. 414. - Amendments.

- E. *All applications for amendment must first be reviewed by the planning and zoning commission. The planning and zoning commission will study the proposed amendment **and determine if it meets the requirements of this ordinance, as well as other applicable ordinances of Screven County. At this time, the zoning administrator may review the proposed amendment and make written recommendations to the planning and zoning commission.***

1. *The application is inconsistent with the definition of a Conditional Use as defined in the Zoning Ordinance Article 2 Sec. 202A.*

Zoning Article 2 Definitions. Sec. 202 A.

Conditional use : A use, specifically designated in this zoning ordinance, that may cause harmful or undesirable effects on surrounding or nearby properties within a given zoning district, **but would in the opinion of the board of commissioners promote the public health, safety, morals, welfare, order, comfort, convenience, appearance, prosperity, or general welfare** if such uses were controlled as to number, area, location, or relation to the neighborhood or, in the alternative, the application of any other standard provided by this zoning ordinance.

If the total 989.29 +/- acres is given conditional use approval as requested then the potential exist that whole 989.29 +/- acres could be developed in the future into a very large landfill. I find that a landfill of this size would have adverse effects to the adjoining property and neighborhood and would not promote the public health, safety, morals, welfare, order, comfort, convenience, appearance, prosperity or the general welfare of the community or the county if the Conditional Use is approved.

2. The use would encroach on the open space as defined in Article 2 Sec. 202 A and as required in Article 7 Sec. 704 M.

Zoning Article 2 Definitions. Sec. 202 A.

Open space : An area that is **intended to provide light and air and within which a structure is prohibited** under the provisions of this ordinance.

Structure : **Anything constructed or erected that requires a fixed location on the ground** or which is attached to something having a fixed location on the ground.

Zoning Article 7 Sec. 704. - Development standards for AG-3 districts.

Sec. 704 M

- M. Open space not to be encroached upon: No open space may be encroached upon or reduced in any manner except in conformity with the yard, setback, off street parking spaces, and other such

required development standards contained in this ordinance. Shrubberty, driveways, retaining walls, fences, curbs, and buffers are not considered to be encroachments of yards. Open space areas as required by this ordinance must be permanently maintained as open space in accordance with the requirements of this ordinance.

The construction of a landfill would be considered a structure by definition and therefore encroach on this required open space and would be inconsistent with the intent of this requirement that no open space may be encroached upon or reduced in size and thus should not allowed.

***3.** The Screven County Comprehensive Plan shows future planned residential development along Highway 17 from Oliver to US 301. And extending to within close proximity to the proposed development. See attached map.

Zoning Article 3 Sec. 308. - Relationship between official map and Screven County Comprehensive Plan.

- A. The Screven County Comprehensive Plan was adopted by the Board of Commissioners of Screven County. It provides the best possible indication of desirable land use patterns that will meet projected future demand for land uses of various types. The Screven County Comprehensive Plan supplies a body of information upon which decisions on future development may be made that are guided by sound planning principles. It contains a future land use map, which shows suitable areas for various types of land uses. Although the board of commissioners is not bound by the comprehensive plan or future land use map, these documents serve as a guide for establishing appropriate zoning districts.

The approval of a landfill use would be in conflict with planning principles as outlined in the Comprehensive Plan for future residential development along Hwy. 17 that extends to within close proximity of the proposed site.

4. *Atlantic Waste Services had filed a law suit claiming assurance from Screven County of approvals for the proposed landfill. The suit has been withdrawn; however, no such assurance has been given by this office and is prohibited by Article 4 Sec. 408 O.*

ZONING ARTICLE 4. - GENERAL PROCEDURES.

Sec. 408. - Building permit required.

- O. No person or entity is entitled to rely on any permit, document, promise, or assurance given or issued by Screven County, unless it is consistent with and in compliance with local ordinances.

This provision will protect the County from any such future law suit resulting from a claim by Atlantic Waste Services that any promise or assurances were given by anyone working for or representing the County that they would receive approvals for the landfill. Approval or denial must be made based on the provisions of the ordinances.

***5.** *The Zoning Ordinance in Article 7 Sec. 703 B 12 and the Solid Waste Plan Sec. 6.4 require that the site is geotechnically suitable for a landfill. The Solid Waste Plan Sec. 6.4 requires site specific soil analysis to determine suitability.*

ZONING ARTICLE 7. - AG-3 AGRICULTURAL AND RESIDENTIAL

Sec. 703. - Permitted uses.

B. Conditional uses (AG-3):

12. Solid waste disposal facility (landfill):

- a. Site must be geotechnically suitable as defined by the county's solid waste management plan.

Screven County Solid Waste Plan

Sec. 6.4

Geotechnical suitability was evaluated based on in-office investigation of soils data available on-line through the Natural Resources Conservation Service (NRCS). None of the soils identified on the soils maps provided herein are described as having conditions that may result in significant differential settling, or geomorphologic features consistent with unstable areas. However, any proposed siting of a landfill would require site-specific field investigation meeting the DNR Criteria for Siting of Solid Waste Management Facilities.

*Atlantic Waste Services application includes two reviews (see attached letters) from Innovative Engineering Strategies and both state that the site appears to be suitable but that further on-site analysis would be required to make the geotechnically suitability determination. Their testing was only conducted on a small portion of the 989.29 +/- acre site, the whole site must be evaluated. The County has secured an independent engineer, truGround, to review the information submitted in the application. truGround (county engineer) (see attached letter from truGround) has agreed with their recommendation that further in-depth on-site analysis is required to determine suitability. truGround also points out several recommendations for additional information to make proper determination. Atlantic Waste Services has not furnished this type information in their reports and **therefore the site geotechnical suitability has not been determined at this time. Geotechnical suitability is required by both zoning and the solid waste plan "before approval" of any application for a landfill. The application is for 989.29 +/- acres and on-site analysis must be done for the entire 989.29 +/- acres to determine site suitability. IES only conducted test on a small portion of the site. Without information that the whole site is geotechnical suitable approval cannot be granted at this time.***

6. *The application does not show or tell how they plan to comply with the requirements of the Georgia Solid Waste Management Act of 1990, as amended.*

ZONING ARTICLE 7. - AG-3 AGRICULTURAL AND RESIDENTIAL

Sec. 703. - Permitted uses.

B. Conditional uses (AG-3):

12. Solid waste disposal facility (landfill):

- b. All solid waste disposal facilities shall comply with the applicable requirements of the Georgia Solid Waste Management Act of 1990, as amended.**

This information must be included (Atlantic Waste Services only provided a copy of State and Federal law) in the application so that the Planning Commission can

determine if other requirements should be added as Conditions for approval. Without this information stating how they will comply the Planning Commission cannot make a complete assessment of desired safety measures for protection of the neighborhood, public health, safety, welfare and environmental issues at this time. Without this complete assessment the County cannot approve this application.

7. The standards used for a Conditional Use are found in Sec.413 F.

ZONING ARTICLE 4. - GENERAL PROCEDURES.

Sec. 413. - Conditional use.

F. The planning and zoning commission and board of commissioners will consider the following standards in arriving at a decision on the conditional use:

1. **It must not be detrimental to the use or development of adjacent properties, or to the general neighborhood; it must not adversely affect the health or safety of residents or workers.**

The location of a landfill will be detrimental to the adjacent property values and use. The landfill will have a negative influence and effect on the people of the neighborhood and severely limit uses on adjoining property. The long-term effect on the health or safety of residents and workers can only be determined after the fact many years from today. The possibility of landfill leaks and contamination of the water table would have potential effects on public health and be additional deprecating factors effecting adjoining land value.

2. **It must not be that any possible depreciating effects and damages to the neighboring properties are greater than the benefits or need for the conditional use.**

The depreciating effects to adjoining properties will restrict any future development and uses thereon and thus severely limit property values as to future uses and value.

The need of a landfill in Screven County is non-existent because the County has for many years used existing commercial landfills located in other counties for

disposal of all solid waste generated within the county and its municipalities. These commercial facilities have excess capacity for many years to come and gives the County multiple locations to properly dispose of its solid waste. The size of this proposed facility dwarfs the need of approximately 140,000-ton disposal (figure from solid waste plan) of solid waste produced within the County for the 10-year planning period. This facility is not based on the ten year need of the County as shown in the Solid Waste Plan because of the size facility requested. This application seeks to serve multiple counties which is unrelated to the needs of Screven County and as such should be denied.

3. **It must not adversely affect existing uses, and it must be proposed to be placed on a lot of sufficient size to satisfy the space requirements of the use.**

The location of a landfill in close proximity to the existing homes will have an adverse effect with noise, traffic, odors, rodents, scavengers, and other negative effects to property value and future uses.

The request is for conditional use on two adjoining parcels, one 750 acres and the other 207 acres, for a total 989.29 +/- acres. The development plan is for only 168 acres at this time. There is no reason to approve such a large acreage (989.29 +/- total) at this time when only 168 acres is to be developed. If the whole 989.29 +/- acres receives approval for solid waste it will be only a matter of time before the whole acreage is developed into one of the largest landfills in Georgia. The application also states that the current dairy operation would continue on the unused acreage of the property. The dairy operation would be prohibited on any land given conditional use approval because the only use permitted on property would be a landfill. The size, 989.29 +/- acres, of this requested Conditional Use is therefore out of proportion with the proposed 168-acre use.

4. **It must meet all other requirements of this ordinance.**

As shown in #5 and #6 of this departmental review the proposed application does not meet the Zoning requirements of Article 7 Sec. 703 B 12 a. and b.

8. *The requirements of Appendix A Zoning Article 4 Sec. 414 E. requires compliance with the Zoning Ordinance and all other applicable Screven County Ordinances.*

ZONING ARTICLE 4. - GENERAL PROCEDURES.

Sec. 414. - Amendments.

- E. All applications for amendment must first be reviewed by the planning and zoning commission. The planning and zoning commission will study the proposed amendment and determine if it meets the requirements of this ordinance, as well as other applicable ordinances of Screven County. At this time, the zoning administrator may review the proposed amendment and make written recommendations to the planning and zoning commission.

This section requires the planning and zoning commission to determine compliance with all related County ordinances. It also gives authority to the zoning administrator to develop this departmental review and make a recommendation to the planning and zoning commission based on all applicable ordinances.

The requirement of Sec. 414 E to comply with other applicable ordinances leads us to the development standards found in the Subdivision Ordinance, the Solid Waste Plan and the Comprehensive Plan.

9. Chapter 66 Subdivision requirements. (Land Use)

Chapter 66 Subdivisions

SUBDIVISIONS ARTICLE VII. - DESIGN STANDARDS

Sec. 66-221. - Generally.

The standards contained in this article shall apply to the subdivision of land, the platting of lots, the development of all new public and private streets, and the establishment of all easements. These

standards are in addition to the minimum requirements established in the county zoning ordinance for the zoning district in which the development or subdivision is located.

The above Sec. 66-221 of the Subdivision ordinance clearly states the standards found in Chapter 66 Subdivisions are in addition to the requirements found in Appendix A Zoning.

??10. Existing access is addressed in section 66-188 as follows.

SUBDIVISIONS Sec. 66-188. - Access.

Neither the planning commission nor the board of commissioners shall approve a subdivision in a location where the existing roads providing primary access are inadequate to serve the additional traffic generated by the development. Where existing roads are inadequate to serve the additional traffic, the planning commission and board of commissioners shall require paved access to the subdivision from an existing paved county road or state or federal highway. If the ditches on existing county roads are to be used for drainage from the subdivision, the developer shall regrade such ditches and provide an all-weather drainage outlet. All regarding and drainage outlets shall be approved by the board of commissioners or its authorized representatives.

The county-maintained road, Louie D. Newton Rd., leading from Hwy 17 to the proposed site is a dirt road that will not hold up to the projected 160 +/- trucks that will access it every day under all types of weather conditions. This type road is inadequate for the additional traffic flow and cannot be approved per Sec. 66-221 of the Subdivision Ordinance.

The application states that Atlantic Waste Services will cover all cost to pave Louie D. Newton Rd. to the site but does not address the fact that the County would require a 60-foot right-of-way. Who will secure the addition land needed for the 60-foot right-of-way? I do not think the county would or should require the adjoining property owners to provide land for a private use.

11. *Standards for access to major developments.*

SUBDIVISIONS Sec. 66-261. - Contents.

A major or minor development, as defined by this chapter, shall not be approved until a development plan has been approved by the zoning administrator and, if required by this chapter, the planning commission, per the requirements of this chapter and consistent with requirements of the county zoning ordinance. Plans and applications for major or minor development shall be submitted to the zoning administrator and shall show the following information:

- (10) *Standards.* In addition to the principles and standards in this chapter, which are appropriate to the planning of all subdivisions, the applicant shall demonstrate to the satisfaction of the planning commission **that the street, parcel and block pattern proposed is specifically adapted to the uses anticipated and takes into account other uses in the vicinity.** The following principles and standards shall be observed:

- c. **Street right-of-way and pavement shall be adequate to accommodate the type and volume of traffic anticipated to be generated thereupon, and shall have not less than a 60-foot right-of-way.**

As described above Louie D. Newton Rd. is unpaved and does not have the minimum 60-foot right-of-way required and would not be specifically adapted to the proposed use, traffic type and volume.

12. *Protection of adjoining uses.*

- f. **Every effort shall be made to protect adjacent residential areas from potential nuisance from a proposed commercial or industrial subdivision, including the provision of extra depth in parcels backing up on existing or potential residential development and provisions for a permanently landscaped buffer strip when necessary.**

No effort to protect adjacent residential areas from potential nuisances produced by this type development is shown or presented in the proposed plan.

13. *Protection of residential areas.*

- g. **Streets carrying nonresidential traffic, especially truck traffic, shall not normally be extended to the boundaries of adjacent existing or potential residential areas.**

The proposed truck traffic of this facility should not be permitted through or extended to the existing residential uses and potential residential areas as defined in the Comprehensive Plan.

14. Economic and public protection of adjoining property.

SUBDIVISIONS Sec. 66-291. - Intent, interpretation and variances.

- (a) This article is intended to permit uses of land which will not have an adverse economic or environmental impact on adjoining property or property within close proximity thereto. In addition, the intent of this article is to protect and preserve public health, safety, convenience, order and the general welfare of the people of the county.

The intent as stated in Sec. 66-291 (a) of permitted uses of land shall not have adverse economic impact on adjoining property or property within close proximity thereto. It is apparent that the location of a landfill will have an adverse negative impact on adjoining property and property with-in close proximity if this request is approved and would therefore not conform to the intent of this article. Approval should not be given based on the negative adverse economic impact to adjoining property and property in close proximity.

15. Land use regulations for landfills are addressed in Sec. 66-292 (o).

SUBDIVISIONS Sec. 66-292. - General land use regulations.

SUBDIVISIONS Sec. 66-292

- (o) *Sanitary landfills.* Because the location and operation of a sanitary landfill has characteristics which may impinge on neighboring activities, land uses, property values, public health and safety, and the transportation network, this activity must meet the following minimum standards to be approved by the planning commission:

SUBDIVISIONS Sec. 66-292

- (o)(1) Meet all requirements of a permitted solid waste disposal facility as defined and regulated under the provisions of the Georgia Comprehensive Solid Waste Management Act (O.C.G.A. § 12-8-20 et seq.) and rules enforced by the state department of natural resources, environmental protection division.

Information as to how they will meet these regulations was not provided with application. This information would help the Planning Commission determine if other issues should be address before giving approval.

16. Well protection.

SUBDIVISIONS Sec. 66-292

- (o)(4) The site shall be not less than 2,500 feet up gradient from all wells or springs used as a source of drinking water by humans or livestock.

This information was not provided; however, it is apparent that several wells exist with-in the site that are used for humans and livestock and thus approval cannot be given.

The 2500-foot required separation from the site for wells that are used for humans and livestock must be determined and thus approval cannot be given without this information. This 2500-foot separation is measured from the site boundary (in this application the site boundary is the property lines).

17. Surface water protection.

SUBDIVISIONS Sec. 66-292

- (o)(5) The site shall be not less than 2,500 feet from the normal boundaries of springs, streams, lakes, or other bodies of water.

The application as presented uses the property lines as the site boundary. This site includes bodies of water (ponds and Carolina Bay) and streams that are closer than the 2500 feet separation required from the site and this requirement cannot be met. Thus, approval cannot be given.

18. Required buffers.

SUBDIVISIONS Sec. 66-292

- (o)(6) The fill area shall be not less than 500 feet from all property lines, public roads, and the site boundary.

The proposed layout submitted shows the property lines as the site boundary. The layout does not show the required buffers and setbacks which would affect the location of the fill site. Without this information approval cannot be given.

19. Enclosure and hedge requirements.

SUBDIVISIONS Sec. 66-292

- (o)(7) The fill area shall be entirely enclosed, exclusive of driveways, at its external boundaries by a wall or fence and an evergreen hedge not less than seven feet in height. The wall or hedge shall not be constructed or planted within the required setback.

The proposed layout submitted does not show the required wall or fence and evergreen hedge, buffers and setbacks all of which will affect the fill location. The application uses the existing forest land on adjoining properties as providing buffers. Adjoining properties cannot be used in any manner. Thus, compliance with the ordinances cannot be determined and approval cannot be granted at this time.

20. Traffic impact.

SUBDIVISIONS Sec. 66-292

- (o)(8) The development shall include a traffic impact statement concerning traffic flow and the structural reliability of the pavement of the existing transportation network most affected (from the site to an arterial street along the primary access route to the site). The traffic impact statement shall include a count of the existing traffic by vehicle type and size and a projection of traffic and a projection of traffic, for when the facility is in full operation, by vehicle type and size for that portion of transportation network most affected by this use. An assessment of how the change in the vehicle mix will affect the pavement reliability including the collector street. Provision for traffic access to the site must be found to provide a safe access and without unreasonable adverse impact upon the transportation network based upon the information supplied and the requirements set forth in this section.

The proposed use of Louie D. Newton Rd. will have an unreasonable adverse impact upon this portion of the county transportation network as proposed. The 160 estimated truck traffic on Louie Newton Rd will create safety concerns for the public using this road which is a dirt road. The developer is offering to pay for

upgrading this section of road to county standards. This would require securing right-of-way from existing property owners for the benefit of a private business. This is an issue that the County should not be involved in. The existing road is inadequate to handle the traffic volume anticipated and approval cannot be granted.

21. Application and Interpretation.

SUBDIVISIONS Sec. 66-431. - Interpretation.

The regulations expressed in this chapter shall be considered as the minimum provisions for the protection of the health, safety, economy, good order, appearance, convenience and welfare of the general public.

The request of Atlantic Waste Services fails to meet the minimum Subdivision requirements listed in items 8 through 21 above and therefore does not meet the minimum provisions to protect the health, safety, economy, good order, appearance, convenience and welfare of the general public of Screven County. Any approval of this request would be in conflict with the intent and interpretation of this Ordinance.

The requirement of Zoning Appendix A Sec. 414 E to comply with other applicable ordinances requires us to consider if the application is consistent with the Solid Waste Plan.

22. Solid Waste Plan

Section 6 Land Limitation Element

There are a number of different factors that must be considered when selecting a suitable site for development of new, or the expansion of existing landfills, and/or other waste handling facilities. Demographic factors, land use factors,

and environmental factors collectively place limitations and pose challenges with regard to finding an appropriate site.

Sites selected for landfills and other related facilities should not diminish the overall quality of life for residents in a community. These sites should also have a minimal impact on the natural environment. The environmental and land use factors presented in the Land Limitation Element in Section 6 are required to be considered by State Jaw. Some factors specify design requirements, while others prohibit the siting of facilities in certain areas.

The Land Limitation Element also includes discussion of local government review to determine permit application consistency with the Screven County Joint SWMP. Together, the Land Limitation Element provides guidance to minimize the adverse effects that could result from potential siting of future waste facilities.

It is difficult imagine that such a large facility would not diminish the overall quality of life for the residents in the community because of the additional traffic flow, noise, air quality, increase in rodent and other undesirable wildlife attracted to the area around the facility.

Discussion to determine permit application consistency with this Solid Waste Plan will be shown not to be consistent in the following sections of this plan review.

23. Natural and Environmental Limitations

6.1 Areas with Natural and Environmental Limitations

This section discusses some of the restrictions with regard to where a solid waste landfill or other waste handling facility can be located within a county or city based on Federal, State, and local policy as they relate to the natural environment. Some of these items are illustrated on the maps that follow.

Floodplains DNR Rule 391-3-4-.05(1)(d) stipulates that any solid waste landfill located in the 100- year floodplain shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste so as to pose a threat to human health or the environment. Updated floodplain maps will be available for Screven County through FEMA Flood Insurance Rate Mapping to facilitate investigation of areas

within stream valleys where siting and design of solid waste disposal facilities would be affected.

The application is inconsistent with the requirements for floodplains because these areas are located within the platted acreage (site) included in the application request. These areas should be excluded from the Conditional Use request and until such time this application is not consistent with the SWMP.

Wetlands - DNR Rule 391-3-16-.03(3)(e) establishes that solid waste landfills may constitute an unacceptable use of a wetland. DJ\1R Rule 391-3-4-.05(1)(e) prohibits the development of solid waste landfills in wetlands, as defined by the U. S. Army Corps of Engineers, unless evidence is provided by the applicant to EPD that use of such wetlands has been permitted or otherwise authorized under all other applicable state and federal laws and rules. The Code of Screven County, Chapter 26, Article JV, establishes a Wetland District Overlay Zone, providing a generalized wetland location map. Wetlands are also featured on the Water Resources Map provided below.

The application is inconsistent with the requirements for wetlands because these areas are located within the platted acreage (site) included in the application request. These areas should be excluded from the Conditional Use request and until such time this application is not consistent with the SWMP.

Significant Groundwater Recharge Areas - DNR Rule 391-3-16-.02(3)(a) requires that in significant groundwater recharge areas, DNR shall not issue permits for new solid waste landfills not having synthetic liners and leachate collection systems. DNR Rule 391-3-4-.05(1)(j) also requires new solid waste landfills or expansions of existing facilities within two miles of a significant groundwater recharge areas to have liners and leachate collection systems, with the exception of facilities accepting waste generated from outside the county in which the facility is located. In that case, the facility must be totally outside of any area designated as a significant groundwater recharge area. The Code of Screven County, Chapter 26, Article ID, establishes a Groundwater Recharge Area District. In the case of a regional landfill which accepts

solid waste generated outside the county in which the landfill is located, no part of such site shall be within any area that has been designated as a significant groundwater recharge area. Groundwater Recharge Areas exist in the southern and northern portions of Screven County, as shown by the Water Resources Map.

The location of groundwater recharge areas near-by needs further research to determine this requirement.

Fault Zones, Seismic Impact Zones, and Unstable Areas-DNR Rule 391-3-4-.05(1)(h), states that owners/operators of new landfills, existing landfills and lateral expansions of existing landfills located in an unstable area must demonstrate that engineering measures have been incorporated into the landfill's design to ensure that the integrity of the structural components of the landfill will not be compromised. Furthermore, the owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable: a. On-site or local soil conditions that may result in significant differential settling; b. On-site or local geologic or geomorphologic features; and c. On-site or local human-made features or events (both surface and subsurface).

No completed on-site evaluation has been included with the application. There is considerable concern in this area of old lime sink holes and recently occurring sinks caused by well drilling. The unstable areas that could affect this application are unknown at this time. Unknown is also how hundreds of tons of solid waste will impact the soils that support it. This requires on-site and in-depth evaluation with extra consideration given to the potential of possible lime sinks because of the additional weight of the of the landfill on the supporting lime formations. The effect a potential lime sink would have on the liners and the water table must be taken into consideration. Without further on-site evaluation that takes into effect the local soil conditions and local geologic or geomorphologic features as required in b. above (local lime sinks holes) the application is inconsistent with the Solid Waste Plan.

24. Land Use and Zoning Limitations

6.2 Areas with Land Use and Zoning Limitations

This section discusses some of the restrictions with regard to where a solid waste landfill or other waste handling facility can be located within a county or city based on Federal, State, and local policy as they relate to the land use or zoning factors. The maps below depict a general overview of *land use* or zoning limitations within Screven County.

Zoning Restrictions - DNR Rule 391-3-4-.05, Criteria for Siting, requires that sites proposed for a solid waste handling facility must conform to all local zoning and land use ordinances. Currently, only the County contains provisions that would allow for siting of solid waste handling or disposal facilities.

The County's Zoning Ordinance specifies permitted or permissible Solid Waste Disposal Facility (landfill) is specified in Article 7, Section 703 of the Zoning Ordinance as Conditional Use 12, permissible in the Agricultural and Residential (AG-3) Zoning District. The conditions for the use require geotechnical suitability and compliance with the Georgia Solid Waste Management Act of 1990, as amended.

This section of the Solid Waste Plan failed to include the requirements of Chapter 66 Subdivisions relating to land use major developments as stated below.

Land Use (Subdivisions Chapter 66) - The county's land use requirements are found in Chapter 66 Subdivisions Ordinance. The requirements in Chapter 66 Article VIII for major developments shall apply to any type land development including landfills.

Land Use issues are discussed in items #8 through #21 above.

The Zoning map shows that for Screven County is generally consistent with the Draft Future Land Use Map, both provided below.

****The county future land use map (Comprehensive Plan) shows that the area along Hwy. 17 is planned for future residential growth and development and the location of a landfill in such close proximity would not be consistent with future land use. (See attached map)***

Airports - The DNR Rules further regulate siting of solid waste management facilities in the vicinity of airports. Accordingly, new MSWLF units or lateral expansions of existing units shall not be located within 10,000 feet (3,048 meters) of any public-use or private-use airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any public-use or private-use airport runway end used by only piston-type aircraft. A small airport is located near Sylvania off of Beacon Road, where a 10,000-foot buffer is required affecting any potential siting of a landfill.

This 10,000-foot requirement does not take into account additional setback requirements for growth of this airport to a class Air 21 airport as stated below.

Location of a landfill within a 6- mile radius of this airport will restrict the future development of this airport from becoming an Air 21 airport Pursuant to Title V, Section 503 of the Wendell H. Ford Aviation Investment and Reform Act. Therefore, careful consideration should be observed before approving any land use that would create smoke, environmental, height or bird hazards for airplanes and restrict future development of this valuable resource.

There are also other Federal requirements required when the property was deeded to the City and County that requires protection of air space for this airport. These Federal requirements are not addressed in the SWMP but must be considered before approval.

Military Air Space - The DNR Criteria for Siting provide that new MSWLF units shall not be located within two miles of a federally restricted military air space which is used for a bombing range. No such military bombing air space is located within two miles of Screven County.

There are no military bombing areas located within Screven County but the Plantation Airport facility is used by the military.

The Air National Guard uses Plantation Airpark as a training location multiple times throughout the year for low level training that could be adversely affected by the location of a land field within the flight path for this training. Therefore, careful consideration should be observed before

approving any land use that would create smoke, environmental, height or bird hazards for airplanes.

25. *Local Procedures*

6.3 Local Procedures for Siting Solid Waste Facilities

The purpose of this section is to outline the requirements that the developer of a new solid waste landfill or other waste handling facility must fulfill in order to demonstrate that the facility they wish to construct in Screven County is consistent with this SWMP.

No proposed solid waste facility or facility expansion will be sited in the Screven County planning area without a letter from the Screven County Commission or the appropriate City or Town Council stating that the proposed facility is consistent with this SWMP.

Any applicant wishing to present a case for constructing such a facility will be required to cover all expenses associated with developing the proposal and properly informing the public based on the procedures listed in this plan, and the common practices for public notification upheld by Screven County and/or the Towns of Hiltonia, Newington, and Rocky Ford, and the Cities of Oliver and Sylvania.

The procedure for determining whether a proposed facility or facility expansion is consistent with the SWMP is as follows:

26. *Written Statement*

A. At least 120 days prior to filling for a solid waste handling permit, or notifying EPD in case of a solid waste facility that is permitted by rule, will submit to the governing body a written statement documenting the following:

1. How the proposed facility or facility expansion will meet the specific goals and/or needs identified in the SWMP, including a description of:
 - a. The impact upon the collection capability within the planning area;

There should be no negative impact to the collection capability of the County. The County recently contracted with a private collection company to collect and dispose of all County solid waste.

- b. The impact upon disposal capacity identified in the planning area;
and

The disposal capacity will increase because there are no other municipal landfills located in the County. However, the proposed facility desires to provide disposal for multiple counties, not just the needs of the County as outlined in the SWMP. Providing this type service is not consistent with this SWMP nor the need of the County.

- c. The impact to the waste reduction and recycling efforts within the planning area, specifically how the proposed facility or facility expansion **will further progress towards waste reduction.**

The application states that it will not offer recycling. This is in direct conflict with and inconsistent with the Solid Waste Plan which encourages and requires waste reduction with-in the County through recycling.

- 2. How the proposed facility or facility expansion and its operation will impact the community. Specifically, what will be:

- a. **The impact to vehicle traffic and public safety around the proposed facility and throughout the planning area;**

Public safety will be negatively impacted because of the large increase in truck traffic on Hwy. 17 and especially Louie D. Newton Rd which is an unpaved dirt road.

Because this will be a multi-county facility other unknown highways within the County will also have increased truck traffic which increases safety concerns. Also, of concern for public safety is leakage, spills and litter from trucks hauling trash to the site.

- b. The **impact on natural** or cultural **resources** within the planning area;

The natural resources, especially wildlife would be negatively impacted because of the attraction of and increase in the number of undesired types of rodents, birds and other scavengers.

- c. The impact to individual and business solid waste management rates; and

If approved, it should lower disposal cost for the County if the County uses the facility.

- d. The impact on the current solid waste management infrastructure with the planning area, both public and private.

There should be no effect on the current solid waste infrastructure.

3. The impact to the financial viability of the existing solid waste management system within the planning area.

If approved, it should lower cost to the County for solid waste disposal if the County should choose to use this facility.

4. Evidence that the proposed facility or facility expansion is sited in an area deemed suitable according to the criteria listed in the Plan.

Evidence has not been submitted that shows the location is geotechnically suitable as defined by the county's solid waste management plan and that it

complies with the applicable requirements of the Georgia Solid Waste Management Act of 1990, as amended. Only a statement that they would comply with Georgia SWM Act and that further evaluation is needed to determine geotechnically suitability. See items # 5 and # 6 above.

5. Evidence that the proposed facility or facility expansion is sited in a location that is consistent with local zoning ordinances.

Evidence has not been shown that the site is consistent with zoning in that geotechnically suitable has not been determined by detailed on site analysis. The application does not address and is not consistent with the requirements found in Chapter 66 Subdivisions. See items #8 through #21 above.

6. Evidence that the proper public notification was given, including notification of all adjacent property owners.

No evidence was given to show that the adjoining property owners have been properly notified.

27. Public Hearing

B. Within 60 days after this document is received, the County Commission and/or appropriate City or Town Council **will hold at least one public hearing on the proposed facility or facility expansion to gather input regarding the consistency of the facility with the SWMP.** This public hearing or hearings will be advertised according to local requirements regarding public notification of public hearings.

The BOC held the public hearing on January 2, 2020 to receive public comment. All public comment was against the proposed facility. The only applicant and his hired professional team spoke in favor of the proposal.

28. BOC Determination

C. **The governing body shall review the written documentation for consistency and consider public comment and determine whether the proposed facility or facility expansion is consistent with the SWMP.** Within 30 days of making their determination the governing body shall notify the facility owner/operator whether or not the proposed facility or facility expansion is consistent with the Plan. **If the proposed facility is not consistent with the Plan, the developer may address the inconsistencies and resubmit their request for another review.**

To be determined by the BOC.

29. Land Limitation

6.4 Assessment of Land Limitation

The use of Solid Waste Disposal Facility (Landfill) in Screven County is restricted to the County's Agricultural and Residential (AG-3) Zoning District as a conditional use. **The conditions for the use require geotechnical suitability and compliance with the Georgia Solid Waste Management**

Act of 1990, as amended. Furthermore, landfills are subject to an approval procedure codified in the County's zoning ordinance, which also requires a public review and decision by the Screven County Board of Commissioners.

The information provided in the amended application does not show enough information to properly make the determination that the site is geotechnically suitable. Further evaluation is required. This is also discussed under item # 5 of this review.

Geotechnical suitability was evaluated based on in-office investigation of soils data available on-line through the Natural Resources Conservation Service (NRCS). None of the soils identified on the soils map provided herein are described as having conditions that may result in significant differential settling, or geomorphologic features consistent with unstable areas. However, any proposed siting of a landfill would require site-specific field investigation meeting the DNR Criteria for Siting of Solid Waste Management Facilities.

Site-specific detailed information was not provided of the entire site. See above and item # 5.

Although not required by Federal or State policy, local protection measures for the Carolina bays, a 'unique area previously discussed in Section 1, and/or otherwise "isolated" or non-jurisdictional wetlands stands, are encouraged in order to preserve such areas.

The amended application states that the Carolina Bays would be protected but detail information including setbacks was not provided. Innovative Engineering Strategies report states that no Carolina bays exist on site, however, truGround report states that in fact there appears to be Carolina bays present. Further evaluation is needed.

Due to the small size and general residential and/or village character of the Towns of Hiltonia, Newington, and Oliver, and the City of Rocky Ford, and because the City of Sylvania does not allow for siting of landfills as a permissible use within their Code of Ordinances, land limitation issues are addressed by Screven County on behalf of the entire planning area.

Land limitations are addressed in the Zoning Ordinance, Subdivision Ordinance, Solid Waste Plan and the Comprehensive Plan and must be followed. The amended application does not make any reference to the

Comprehensive Plan nor to the setbacks required for major developments as found in the Subdivision Ordinance and is thus not consistent with the SWMP.

Under this SWMP, and based on current policies, restrictions, and limitations, **the following within the Screven County planning area are considered unsuitable for the siting of new**, or expansion of any existing solid waste landfill or other waste handling facilities ⁹

- Any location within the municipal boundaries of the incorporated Towns of Hiltonia, Newington., and Rocky Ford, and Cities of Oliver and Sylvania.
- Any location potentially within the I 0,000-foot Airport Exclusion Zone (buffer).
- Any location within 5,708 yards of a designated National Historic Site within the planning area.
- All lands identified on the Screven County Zoning Map that are outside of the AG-3 Zoning District.
- **Wetlands**, as defined by the U.S. Army Corps of Engineers, the Ogeechee and Savannah River Corridors, groundwater recharge areas, and floodplains. With the exception of 100-year floodplain, these environmentally sensitive riparian features are shown on the Water Resources Map provided herein. **These natural areas, especially wetlands, are generally located throughout the AG-3 Zoning District and the policies and restrictions established for them will prevail.**

Wetlands located on the property are included within the area of the requested Conditional Use. These areas should be excluded and platted out of the site area of the request. This is inconsistent with the SWMP.

- Areas with within one-half mile of another county's borders without the approval of that jurisdiction's governing authority, if determined applicable under O.C.G.A. § 12-8-25.

30. Needs and Goals

6.5 Needs and Goals

The needs and goals associated with land limitations and procedure as inventoried and assessed above, for 1) siting a solid waste handling facility within the planning area and 2) establishing a procedure for demonstration of consistency with the SWMP, are as follows:

Goal: Ensure **that any development of solid waste handling facilities** and facility expansions **satisfies the needs of the Screven County planning area, is consistent with this SWMP and with the ordinances of Screven County,** the Towns of Hiltonia, Newington, and Rocky Ford, and the Cities of Oliver and Sylvania, **is compatible with surrounding land uses, and meets all relevant Federal, State, and local requirements.**

This proposed facility dwarfs the needs of the SWMP for solid waste disposal for the County by its size. This facility is for a multi-county landfill which is not addressed in the SWMP and as such would be incompatible and inconsistent with this Plan and the surrounding land uses. As stated in this departmental review the proposal does not meet local requirements in several ways. Information was not provided to show how the facility will be in compliance with relevant Federal and State regulations.

Strategies:

- **Keep all information pertaining to natural environmental limitations, zoning, and land uses updated and available.**

Updates to the local natural environmental, zoning, land uses and solid waste plan are in the process at this time.

- Inform the economic development interests of the community regarding the procedures to determine consistency of proposed facilities with this SWMP.

This should be done at the required public meeting to gather input from the public.

- Enforce the requirement that no solid waste handling facility be sited without approval in the form of a letter from the Screven County Board of Commissioners documenting its consistency with the SWMP and using the procedures described herein and as amended in the Screven County Zoning Ordinance.

The BOC must ensure that the requirements of SWMP, Appendix A Zoning and Chapter 66 Subdivisions Major Developments are met before issuing a letter of assurance.

This departmental review has shown in several places that the proposed application fails to be consistent with the Solid Waste Plan.

ADMINISTRATIVE RECOMMENDATION

It is my recommendation that this Conditional Use request be denied for all the reasons stated here-in which show inconsistencies with the requirements of Appendix A Zoning, Chapter 66 Subdivision, Solid Waste Plan and the Comprehensive Plan.

***by number means to add info.**



truGround Environmental, LLC
84 Peachtree St NW | Suite 8B | Atlanta, GA | 30303

TECHNICAL MEMORANDUM

TO: Randy Hagan – Screven County, Zoning Administrator

FROM: James R. Henderson, P.E.

PROJECT: Proposed Green Meadows Municipal Solid Waste Disposal & Recycling Facility

SUBJECT: Review of July 9, 2019 Amended Application (Appendices X and XI)

DATE: 27 December 2019

This technical memorandum has been prepared to summarize a critical review of several portions of Atlantic Waste Services, Inc.'s recent submittal:

“REQUEST FOR AG-3 AGRICULTURAL AND RESIDENTIAL CONDITIONAL USE, GREEN MEADOWS MUNICIPAL DISPOSAL & RECYCLING FACILITY, Amended Application for July 9, 2019 Submittal”.

Specifically, Atlantic Waste Services, Inc. (*the Applicant*) has applied for a conditional use zoning permit to construct and operate a proposed subtitle D municipal solid waste (MSW) landfill at 1583 Louie D Newton Rd, Sylvania, GA (the Site). The intention of this technical memorandum is to assist the Screven County Zoning Department (*the County*) in their review as it relates to Site geotechnical suitability and groundwater pollution potential liabilities associated with the construction and operation of an MSW landfill.

The specific documents reviewed include:

- *Appendix IX Screven County Solid Waste Management Plan*, Coastal Georgia Regional Development Center (CGRDC), Adopted April 14, 2009.
- *Appendix X Letter Report on Geotechnical Suitability of Proposed Site*, Innovative Engineering Strategies LLC (IES), June 18, 2019.
- *Appendix XI Letter Report on Groundwater Pollution Potential*, Innovative Engineering Strategies (IES) LLC, July 31, 2019.

This technical review is largely based on comparison with applicable rules and guidance provided by the Georgia Solid Waste Management Act of 1990, as amended (the Act) and the Screven County Joint Solid Waste Management Plan 2008-2018.

BACKGROUND

The Applicant has proposed to construct an MSW landfill with an approximate 84-acre footprint, ancillary recycling facilities and associated soil borrow pit area. The entire proposed operation is to be located on a portion of the ±957-acre Green Meadows Dairy property located on Louie D Newton Road 5 miles west of the City of Oliver, in Screven County, Georgia¹.

¹ <https://greenmeadowsdisposalrecycling.com/project-description/>

TECHNICAL COMMENTS

The following provides both general and specific comments for the above-cited documents while noting any potential deficiencies that the County should consider before granting conditional use zoning to the Applicant.

General Comments:

Both documents (Appendix X and XI) state in their respective introductions that work related to geotechnical suitability and groundwater pollution potential completed to date is a 'preliminary opinion' with the following limitations, i.e.:

"...should the subject property receive Conditional Use zoning in the existing Screven County Agricultural and Residential (AG-3) Zoning District for a solid waste disposal facility (landfill), then it our understanding a comprehensive Site Assessment Report (SAR) will be prepared in accordance with "Circular 14: Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", as required by the Georgia Solid Waste Management Act of 1990, as amended (Act)." (IES, 2019a, p. 20)

And each document further concludes, respectively,

Appendix X – Letter Report on Geotechnical Suitability of Proposed Site

*"Based upon this **initial and limited** assessment, the upland areas at the Green Meadows Dairy Farm site are geotechnically suitable for a solid waste landfill noting the proposed landfill must be designed to meet the typical standards required by Georgia Environmental Protection Division (EPD) in the Act." (**emphasis added**) (IES, 2019a, p. 1)*

and;

Appendix XI – Letter Report on Groundwater Pollution Potential

*"Based upon this **initial and limited** assessment, it is extremely unlikely a Subtitle D municipal solid waste (MSW) landfill, required to be designed and constructed in accordance with state and federal requirements (a "modern landfill"), will contaminate the groundwater in the Upper Floridan Aquifer, where nearby agricultural and drinking water wells are assumed to be constructed." (**emphasis added**) (IES, 2019b, p. 1)*

truGround is in general agreement with the above statements while noting that the conclusions are contingent upon, this preliminary (i.e. "...initial and limited assessment"). It is expected that these findings will be further augmented and confirmed (or denied) during the development of the SAR. Further, this general agreement is contingent upon several of the following specific comments being adequately addressed where noted.

Specific Comments to Appendix X Letter Report on Geotechnical Suitability of Proposed Site:

Comment 1: Section 1.1 Boring and Sampling Program

"Between May 28 and 29, 2019, Whitaker Laboratory, Inc. (Whitaker) constructed six (6) soil test borings n (sic) upland areas across the ±957 acre site." (IES, 2019a, p. 21)

Although, this boring count of (6) is adequate for a 'preliminary opinion', it should be noted that GAEPD guidance recommends that soil borings be collected at a rate of one per twenty acres for

use in the SAR. Based upon the estimated 957-acre size, that would result in the installation of approximately 48 borings. (GAEPC, 1997)

Comment 2: Section 1.2 Description of Soils and Rocks

"No rock or bedrock was encountered in all six (6) borings B-01 through B-06." (IES, 2019a, p.21)

GAEPD Rules state that *"the depth to bedrock, the type of bedrock and the amount of fracturing and jointing in the bedrock shall be determined"* (GAEPD, 1997, p. 8). GAEPD does further clarify that this requirement may be waived if the borings *"...demonstrate that bedrock is 20 feet or more below the permanent water table (GAEPD, 1997, p. 10)."* However, the 6 borings constructed by Whitaker do not currently satisfy this requirement. Specifically, the borings were not advanced deep enough to encounter bedrock. Further, all borings were terminated at 30 feet below ground surface (bgs) with the water table ranging from 15 to 30 feet bgs. Thus, borings would at a minimum need to be advanced to 50 feet for this requirement to be waived. Nonetheless, truGround views these borings as adequate for 'a preliminary opinion' and expects that bedrock will be properly evaluated during the SAR.

Comment 3: Appendix A Report Or (sic) Drilling Services, Whitaker Laboratory, Inc., June 17, 2019

"EPA Test Methods 8081, 8051, 6010, & 7471 were performed at each boring location on samples collected from the top 2 feet. Results from these tests were provided to you in a different report date June 7, 2019." (IES, 2019a, Appendix A, p. 3)

Since the Site has (and is currently) practicing wastewater sludge land application activities (IES, 2019b, p. 10), the potential for USEPA² regulated hazardous substances/contaminants may be present in the surface soils; truGround recommends that the County be provided the above referenced analytical results prior to granting conditional-use zoning to confirm that there is not a current environmental contamination liability.

Specific Comments to Appendix XI Letter Report on Groundwater Pollution Potential:

Comment 4: Section 1.3 Potential of Unconfined and Confined Aquifers as Sources of Drinking Water

"Based upon correspondence with a local well driller who installs domestic and agricultural wells in the area, the domestic wells in this area of Screven County, Georgia are wells terminated within the Upper Floridan aquifer approximately ± 200 feet below ground surface; the agricultural water wells are terminated approximately ± 300 feet below ground surface." (IES, 2019b, p. 3)

The above reference to 'correspondence with a local well driller' is not provided in the report nor is the name of the person and/or firm consulted cited in the report. For completeness and due

² United States Environmental Protection Agency (USEPA) Test Methods referenced include: pesticides, herbicides, heavy metals.

diligence, truGround recommends that this reference/correspondence be provided to the County prior to granting conditional-use zoning.

Comment 5: Section 2.4 Estimated Travel Time for Leachate to Reach Potential Receptors

*"Using the conservative, maximum flow velocity, the estimated travel time for groundwater to flow horizontally from the proposed waste disposal boundary to this potential receptor is approximately **24.6 years.**" (emphasis added) (IES, 2019a, p. 8)*

As stated above, IES has calculated/estimated travel time of 24.6 years. However, IES then states later in their report,

*"In conclusion, in the unlikely occurrence of a failure in the required liner and leachate collection system, the estimated travel time of a theoretical contaminant is anticipated to be much greater than **16.1 years.**" (emphasis added) (IES, 2019b, p. 9)*

Based upon truGround's calculation of contaminant travel time using the input values provided in the IES report, it appears that 24.6 years is correct and that the 16.1 value is incorrect. Nevertheless, this is a fundamental component of the groundwater pollution potential assessment and thus, this discrepancy needs to be resolved by the Applicant prior to granting conditional-use zoning.

Comment 6: Carolina Bays

The current Screven County Solid Waste Management Plan (*the Plan*) references the protection of a land feature defined as a 'Carolina Bay' when siting solid waste facilities within Screven County. Specifically, the Plan states,

"Screven County contains a significant number of Carolina bays that feature a general integrity ranking from "great" to "extirpated." Carolina bays are elliptical wetlands found along the Atlantic Coastal Plain that typically share a suite of features including an oval or tear-drop shape, orientation along a Northwest-Southeast axis, a raised sand rim along the south and east margins, a depth profile that often increase from the Northwest to the Southeast, and fluctuating water levels. Local protection measures of the unique areas are encouraged but not currently required." (CGRDC, 2009, p.2)

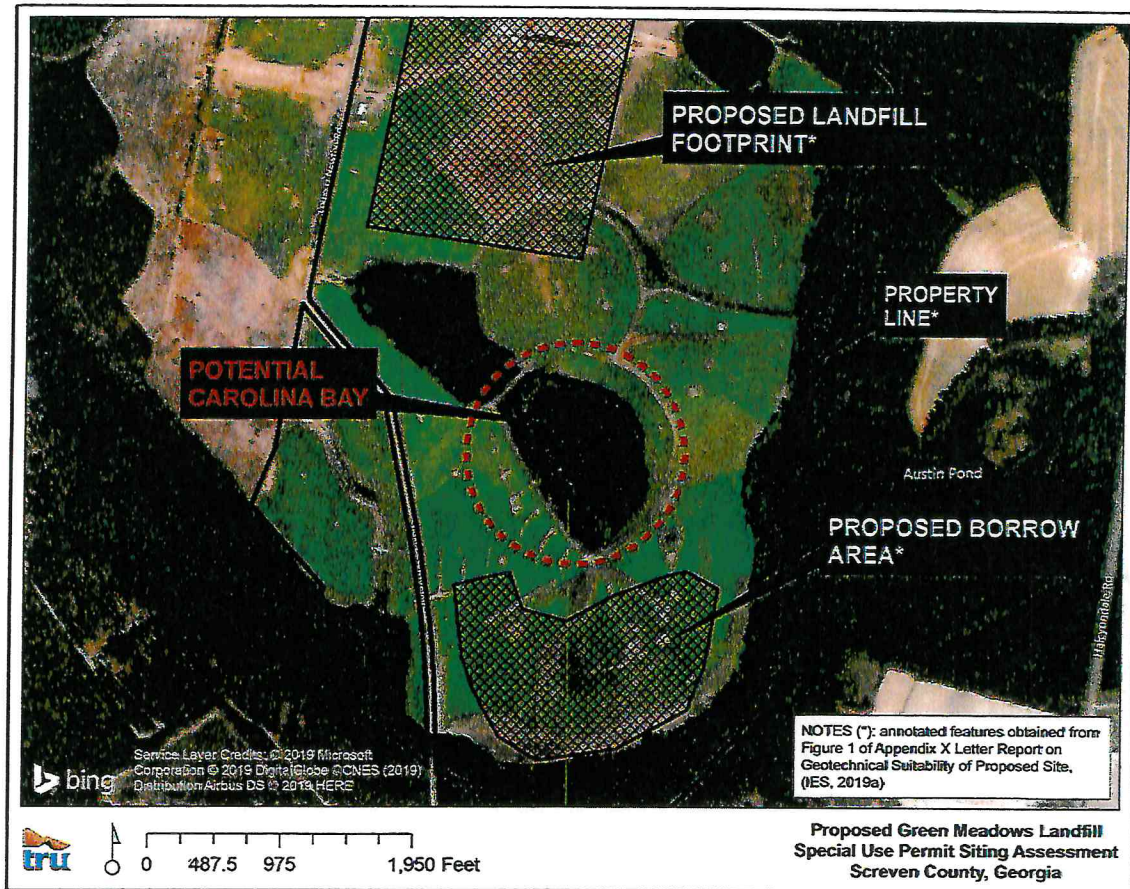
And it further describes their protection/preservation intentions as,

"Although not required by Federal or State policy, local protection measures for the Carolina bays, a unique area previously discussed in Section 1, and/or otherwise "isolated" or non-jurisdictional wetlands stands, are encouraged in order to preserve such areas." (CGRDC, 2009, p. 38)

The provided documents (Appendix X and XI) did not address the potential presence of Carolina Bays³ at the Site. However, a cursory review of available aerial photography of the Site suggests

³ Screven County has the highest presence of Carolina Bays in Georgia (Van De Genachte, 2002, p. 15)

that a Carolina Bay may be present as illustrated below, noting the feature is located between the proposed landfill footprint and borrow pit area.



Although identification of Carolina Bays is not specifically required, truGround recommends that the County request that the Applicant conduct an investigation to determine the presence/integrity of Carolina Bay features at the Site. The rationale for this request is based on the following:

- Carolina Bays are ecologically valuable due to their support of habitat & species diversity, amphibian refugia, protection of rare species, and water quality protection. (Van De Genachte, 2002, p. 4)
- Carolina Bays may be an indication of potential subsidence due to their nature of formation (Van De Genachte, 2002, p. 2)

Further, if the presence of a Carolina Bay feature(s) is present at the Site, truGround recommends that County request that the Applicant incorporate protection/preservation measures into the SAR that are aligned with the conservation practices discussed in Van De Genachte, 2002 and Barton, 2007 (cited below).

REFERENCES

Barton, 2007. Barton CD, De Steven D, Sharitz R, Kilgo J, Kinkead K, Otis D, Hanlin H, Ledvina J, Taylor B, Blake J (2007) The Carolina bay restoration project: final report 2000–2006. Technical Report DE-A109-00SR22188, U.S. Department of Energy, Washington, DC

CGRDC, 2009. "Appendix IX Screven County Solid Waste Management Plan," Coastal Georgia Regional Development Center, Adopted April 14, 2009.

GAEPD, 1997. "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia, Circular 14.

IES, 2019a. "Appendix X Letter Report on Geotechnical Suitability of Proposed Site," Innovative Engineering Strategies LLC, June 18, 2019.

IES, 2019b. "Appendix XI Letter Report on Groundwater Pollution Potential," Innovative Engineering Strategies LLC, July 31, 2019.

Van De Genachte, 2002. "Carolina Bays of Georgia, Their Distribution, Condition, and Conservation," Phase I: Distribution and Remote Assessment, Phase II: Field Work. Georgia Natural Heritage Program, Wildlife Resources Division. 2002.



**ENVIRONMENTAL
SERVICES, INC.**
A Terracon COMPANY

Memo

TO: Mr. Ben Wall

FROM: Mr. Mike DeMell

CC:

DATE: January 10, 2020

RE: Response to Comments
truGround Technical Memorandum dated December 27, 2019
Proposed Green Meadows Municipal Solid Waste Disposal Facility
Screven County, Georgia

As requested, Environmental Services, Inc., a Terracon Company (ESI) is providing our summary response to Comment 6: Carolina Bays in a memorandum prepared by truGround Environmental, LLC dated December 27, 2019.

It should be noted, on behalf of Mr. Wall, ESI has previously spent time to assemble and review site data and we have personal experience on-site to assess current site conditions compared to the aforementioned data. Furthermore, to prepare our response to Comment 6, we have reviewed the "Carolina Bays of Georgia: Their Distribution, Condition, and Conservation" work prepared by Eric Van De Genachte and Shan Cammack in 2002; Georgia National Heritage Program, Wildlife Resources Division (WRD).

Response to truGround Comment No. 6:

The WRD report outlines methods used in this study consisted of multiple sources of aerial imagery and remote sensing, and limited ground truthing. Due to the multitude of features that Carolina bays possess, it can make some bays hard to distinguish from other wetland resources. The report goes on to say, "An additional 969 polygons were digitized during the review of the DOQs representing wetlands that were similar to Carolina bays, but were ultimately not identified as such." As previously mentioned, Carolina bays are not defined by a single characteristic, but by several features and since not all Carolina bays possess all of the identifying features, distinguishing bays from other kinds of wetlands can be difficult."

Taking the above into consideration, and upon review of Figure 16 attached, its clear the assessment performed by WRD included a thorough review of the proposed project area in that

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A Terracon COMPANY

there are at least 18 other Carolina Bays identified and proximate to the project area. The feature in question, may be one of the other 969 polygons that is similar to but ultimately not a Carolina Bay pursuant to WRD.

Also, in the WRD report, the following statement outlines the characteristics of Carolina bays as well as the challenges in identifying them: "The uniformity of features found in Carolina bays has challenged theorists to propose a single mechanism for their development or creation. The challenge has spawned over a dozen theories on Carolina bay formation ranging from the plausible (e.g. subsidence features and wind events) to the fanciful (e.g. extra-terrestrial landing pads and ancient fish redds). Ultimately, there is no single accepted theory on their formation. In the scientific community, the most popular are those that attribute a complex of factors to bay formation and are typically based on combination of impacts from winds (Pleistocene storms) and water flow (Brooks et al., 2001)."

The truGround memorandum recommends to the County that the Applicant conduct an investigation to determine the presence / integrity of the Carolina Bay features on the Site.

Regarding presence, as outlined above and in the WRD report, ESI does not believe any further review of this feature is necessary for two reasons: First; WRD has thoroughly assessed Screven County and the immediate surrounding areas and has not identified this as a Carolina Bay. Second; and more relative to this discussion, the conceptual plan avoids this feature and other wetland features within the site. The planned avoidance of these features is primarily due to avoidance and minimization standards associated with the regulations mandated by the Clean Water Act. In short, the large site is dominated by uplands; therefore, providing ample room for the proposed site development without impacting wetland features.

Regarding integrity, ESI has consulted the WRD report and we assess the general integrity of this feature as "4; Poor". This score is derived from considering the other parameters and metrics to include ditching intensity, rim condition, buffer condition, dominant and secondary vegetation types and natural hydrologic integrity.

ESI views this feature as a resource that requires consideration pursuant to wetland regulations. As stated above, avoidance of this feature is defined on the conceptual plan. Preservation of this feature is therefore consistent with the concept plan, Clean Water Act guidance, and general recommendations by Screven County, Ga.

As always, please feel free to call me should you have any questions or wish to discuss this in further detail (912)596-3746.

Attachments: Figure 16, Screven Co. Carolina Bay Integrity Rating

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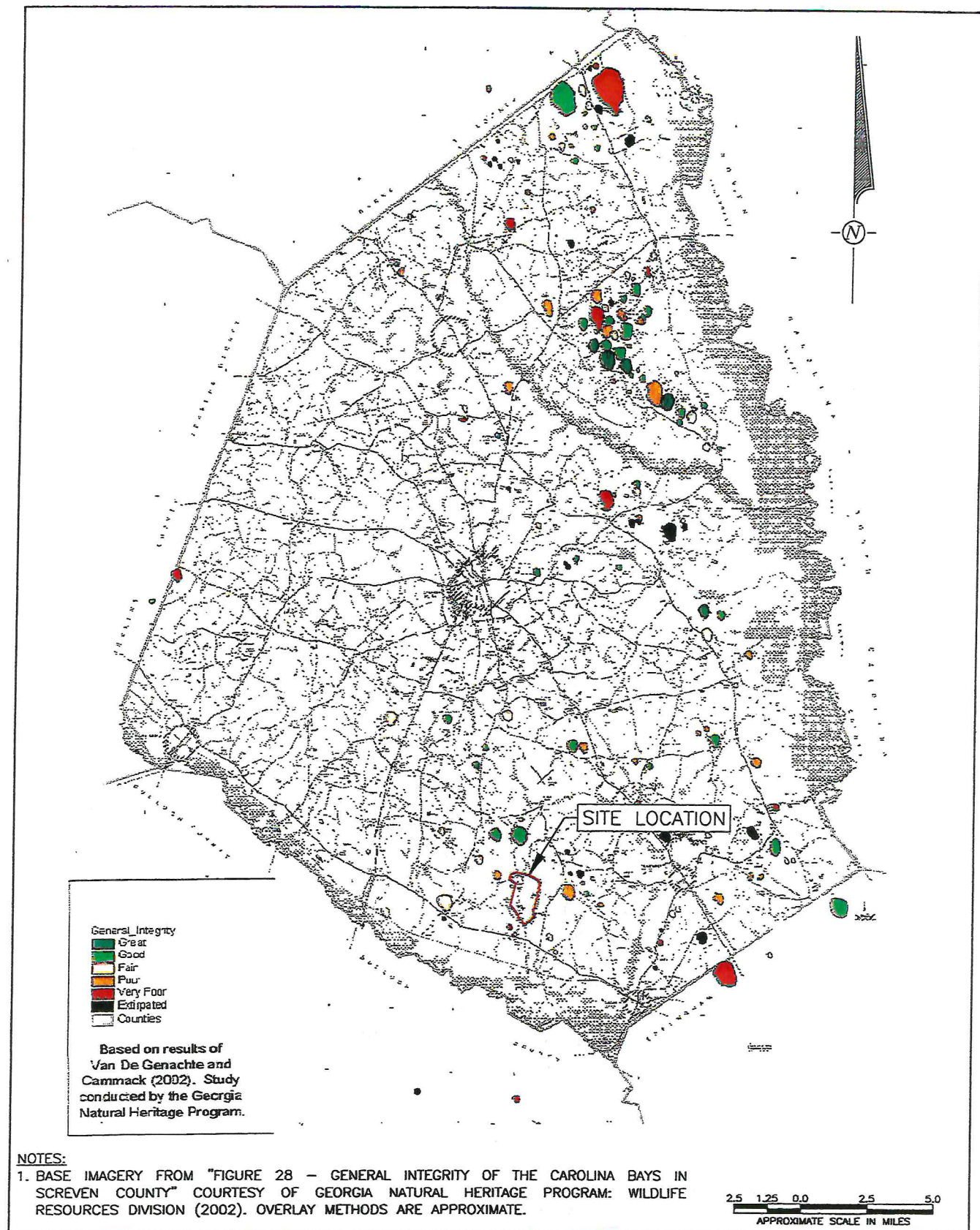
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ATLANTIC WASTE SERVICES, INC.

PROPOSED LANDFILL IN SCREVEN COUNTY, GEORGIA

CONSISTENCY WITH
SOLID WASTE MANAGEMENT PLAN

PROXIMITY TO CAROLINA BAYS

FIGURE

16



Innovative
Engineering
Strategies, LLC

P.O. Box 560
Spartanburg, Georgia 31086
(478) 365-8609
mbiers@ie-strategies.com

CIVIL * ENVIRONMENTAL

Memo

To: Mr. Ben Wall

From: Mr. Michael W. Biers, P.E.

Date: January 10, 2020

Subject: Response to Comments
truGround Technical Memorandum dated December 27, 2019
Proposed Green Meadows Municipal Solid Waste Disposal Facility
Screven County, Georgia

Dear Mr. Wall:

Innovative Engineering Strategies, LLC (IES) is pleased the third-party professional engineer retained by Screven County is in "general agreement" with our preliminary opinion of geotechnical suitability and groundwater pollution potential. As requested, this memo shall serve as a summary response to comments in a memorandum prepared by truGround Environmental, LLC dated December 27, 2019.

Response to truGround General Comments, Comment No. 1&2:

As indicated in the preliminary assessment, the applicant for a solid waste handling permit in Georgia does not typically proceed with the more comprehensive site assessment until they obtain confirmation required by the Georgia Environmental Protection Division (EPD) regarding zoning and consistency with the Screven County Solid Waste Management Plan (SWMP). The purpose of the preliminary field work and conclusions was for Atlantic Waste Services, Inc. (AWS) to voluntarily provide supplemental information to further support their Conditional Use zoning application and demonstration why the proposed development is consistent with the SWMP. Once AWS receives confirmation on zoning and consistency with the SWMP, they will be subject to provide a more comprehensive site assessment report (SAR), as required by state and federal regulations. Again, IES was pleased to read truGround understands these initial "findings will be further augmented and confirmed (or denied) during development of the SAR."

truGround states in Comment No. 1 the "boring count of (6) is adequate for a 'preliminary opinion'" and in Comment No. 2 "views these borings as adequate for 'a preliminary opinion' and expects that bedrock will be properly evaluated during the SAR." The use of the words "preliminary" (and also "initial" and "limited") do not mean the methods of assessment are inadequate, nor unreliable for use by AWS. The information in the assessment and the means and methods to obtain the information are reliable and based upon good generally accepted civil and environmental engineering practices. The words "preliminary", "initial" and "limited" are used

with respect to the level of effort that will eventually be required by the applicant in applying for a solid waste handling permit with EPD.

Response to truGround Comment No. 3:

As requested, the referenced analyses performed on six (6) soil samples collected in the upper two (2) feet while drilling are enclosed with this memo. A laboratory analysis was performed on each sample. Of the parameters analyzed, only Arsenic, Barium, Chromium and Lead were detected. No established standards were exceeded. Although there is strong evidence these metals are naturally occurring in Georgia soils, further evaluation is necessary to adequately determine the sources of the metals detected in the soil samples.

Response to truGround Comment No. 4:

The local well driller referenced in our letter was not identified in the letter because listing their name in our opinion was not necessary. There was also no written correspondence because the conversation took place over the phone. The purpose of contacting the local well driller was to confirm information researched in technical literature and other sources about the groundwater used for potable water wells in Screven County. However, as requested, the local well driller IES contacted is Johnson Well Drilling, Georgia Licensed Water Well Contractor No. 504.

IES contacted Johnson by phone on June 27, 2019. Johnson briefly summarized over the phone their historical observations of drinking water wells installed by them (and others) in the vicinity of the Green Meadows site and throughout Screven County.

Response to truGround Comment No. 5:

The sentence on Page 9 of the IES letter dated July 31, 2019 should read:

“In conclusion, in the unlikely occurrence of a failure in the required liner and leachate collection system, the estimated travel time of a theoretical contaminant is anticipated to be much greater than 24.6 years.”

Response to truGround Comment No. 6:

Further site-specific evaluation by others is necessary to adequately review the wetland features on the property. Based upon the study referenced in the SWMP there are no Carolina Bays on the Green Meadows property.¹ State and federal regulations and policies require the landfill development to be designed and operated pursuant to engineering controls and best management practices to assure against any negative impact to all jurisdictional wetlands on the site, including any Carolina Bays.

Should you have any questions, or need any additional information, do not hesitate to contact me at (478) 365-8609.

mb

¹ Van De Genachte and Cammack (2002). “Carolina Bays of Georgia: Their Distribution, Condition, and Conservation.” Georgia Natural Heritage Program: Wildlife Resources Division.



WHITAKER LABORATORY, INC.

P.O. Box 7078 2500 Tremont Road Savannah, Georgia 31418
(912) 234-0696 Fax (912) 233-5061 Email: info@whitakerlab.net

June 7, 2019

Harbin Engineering, PC &
Atlantic Waste Services, Inc.
125-B Pine Meadow Drive
Pooler, Georgia 31322
Attn: Mr. Michael Biers

Re: Baseline Soil Contamination Limited Assessment
 Completed upon Louie D. Newton Road
 Screven County, Georgia

Dear Mr. Biers:

As requested, WHITAKER LABORATORY, INC. performed six (6) soil test borings at the above referenced site.

As requested within the agreed upon Scope of Work for this site, the sample collected ($\pm 2'$) below existing grade at each boring location was containerized in sterile glass vials, placed on ice, and returned to the laboratory to be prepared for chemical analyses for the presence of pesticides (SW 8081), herbicides (SW8051) and (RCRA) Heavy Metals (SW6010) including Mercury (SW7471).

Each of the six (6) soil samples upon return to the laboratory, were prepared, chemically preserved where required by methodology, and placed upon ice to be shipped under a strict chain of custody to Analytical Environmental Services, Inc., an approved and accredited (US EPA) laboratory within the State of Georgia/South Carolina.

Upon review of the analytical results, no pesticides or herbicides were detected within any of the six (6) soil samples collected ($\pm 2'$) below surface grade.

However, some detections for assorted heavy metals were identified within the collected soil samples. Please see the chart on the following page identifying a Maximum Contamination Level for each constituent as defined within the "Regulated Substances and Soil Concentrations that Trigger Notifications" as published within (40 CFR, Part 302, Table 302.4).

SOIL RESULTS CHART: (All Values Below Expressed in mg/Kg)

Constituent	B-1-2'	B-2-2'	B-3-2'	B-4-2'	B-5-2'	B-6-2'	MCL's*
Arsenic	4.94	BRL**	BRL	BRL	5.57	BRL	41.0
Barium	20.90	12.10	57.70	19.80	23.50	14.30	500.0
Cadmium	BRL	BRL	BRL	BRL	BRL	BRL	39.0
Chromium	30.70	6.58	12.70	4.46	31.00	22.00	1200.0
Lead	6.28	BRL	4.94	3.91	4.87	0.148	400.0
Selenium	BRL	BRL	BRL	BRL	BRL	BRL	36.0
Silver	BRL	BRL	BRL	BRL	BRL	BRL	10.0
Mercury	BRL	BRL	BRL	BRL	BRL	BRL	17.0

(* = Maximum Contamination Limits ** = Below Reporting Limits)

At the time of this Limited Contamination Assessment, no "notifiable conditions" (NC's) were identified within any of the soil samples as collected and analyzed.

We would like to take this opportunity to thank you for your confidence in our ability to serve your Environmental Testing needs. We welcome the opportunity to assist you with your testing needs and look forward to a continuing relationship in the future.

Sincerely:



Donald Martin, Jr.
Environmental Division

CHEMICAL ANALYSIS

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-001

Client Sample ID: B-1-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D					(SW3050B)			
Arsenic	4.94	4.46		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Barium	20.9	4.46		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Cadmium	BRL	2.23		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Chromium	30.7	2.23		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Lead	6.28	4.46		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Selenium	BRL	4.46		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
Silver	BRL	2.23		mg/Kg-dry	279834	1	06/03/2019 15:49	DG
PERCENT MOISTURE D2216								
Percent Moisture	17.0	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-002

Client Sample ID: B-2-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.102		mg/Kg-dry	279985	1	06/03/2019 16:46	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
4,4'-DDE	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
4,4'-DDT	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Aldrin	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
alpha-BHC	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
alpha-Chlordane	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
beta-BHC	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
delta-BHC	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Dieldrin	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endosulfan I	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endosulfan II	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endosulfan sulfate	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endrin	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endrin aldehyde	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Endrin ketone	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
gamma-BHC	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
gamma-Chlordane	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Heptachlor	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Heptachlor epoxide	BRL	0.0017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Methoxychlor	BRL	0.017		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Toxaphene	BRL	0.17		mg/Kg-dry	279952	1	06/04/2019 12:35	UH
Surr: Decachlorobiphenyl	83.9	44.5-124		%REC	279952	1	06/04/2019 12:35	UH
Surr: Tetrachloro-m-xylene	77.5	45.1-120		%REC	279952	1	06/04/2019 12:35	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.034		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
2,4,5-TP (Silvex)	BRL	0.034		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
2,4-D	BRL	0.034		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
2,4-DB	BRL	0.18		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
Dalapon	BRL	0.34		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
Dicamba	BRL	0.034		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
Dichlorprop	BRL	0.034		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
Dinoseb	BRL	0.089		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
MCPA	BRL	3.4		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
MCPP	BRL	3.4		mg/Kg-dry	279950	1	06/03/2019 16:39	HB
Surr: DCAA	58.5	44-120		%REC	279950	1	06/03/2019 16:39	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-002

Client Sample ID: B-2-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D					(SW3050B)			
Arsenic	BRL	4.68		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Barium	12.1	4.68		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Cadmium	BRL	2.34		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Chromium	6.58	2.34		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Lead	BRL	4.68		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Selenium	BRL	4.68		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
Silver	BRL	2.34		mg/Kg-dry	279834	1	06/03/2019 15:09	DG
PERCENT MOISTURE D2216								
Percent Moisture	4.22	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-003

Client Sample ID: B-3-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.103		mg/Kg-dry	279985	1	06/03/2019 16:57	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
4,4'-DDE	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
4,4'-DDT	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Aldrin	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
alpha-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
alpha-Chlordane	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
beta-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
delta-BHC	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Dieldrin	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endosulfan I	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endosulfan II	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endosulfan sulfate	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endrin	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endrin aldehyde	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Endrin ketone	BRL	0.0035		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
gamma-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
gamma-Chlordane	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Heptachlor	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Heptachlor epoxide	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Methoxychlor	BRL	0.18		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Toxaphene	BRL	0.18		mg/Kg-dry	279952	1	06/04/2019 12:46	UH
Surr: Decachlorobiphenyl	82.6	44.5-124		%REC	279952	1	06/04/2019 12:46	UH
Surr: Tetrachloro-m-xylene	74.4	45.1-120		%REC	279952	1	06/04/2019 12:46	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.035		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
2,4,5-TP (Silvex)	BRL	0.035		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
2,4-D	BRL	0.035		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
2,4-DB	BRL	0.18		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
Dalapon	BRL	0.35		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
Dicamba	BRL	0.035		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
Dichlorprop	BRL	0.035		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
Dinoseb	BRL	0.090		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
MCPA	BRL	3.5		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
MCPP	BRL	3.5		mg/Kg-dry	279950	1	06/03/2019 17:00	HB
Surr: DCAA	66.7	44-120		%REC	279950	1	06/03/2019 17:00	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client:	Whitaker Laboratory	Client Sample ID:	B-3-2'
Project Name:	Harbin Eng.	Collection Date:	5/30/2019 9:00:00 AM
Lab ID:	1905U23-003	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D					(SW3050B)			
Arsenic	BRL	3.99		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Barium	57.7	3.99		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Cadmium	BRL	2.00		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Chromium	12.7	2.00		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Lead	4.94	3.99		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Selenium	BRL	3.99		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
Silver	BRL	2.00		mg/Kg-dry	279834	1	06/03/2019 15:52	DG
PERCENT MOISTURE D2216								
Percent Moisture	6.03	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-004

Client Sample ID: B-4-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.106		mg/Kg-dry	279985	1	06/03/2019 17:00	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
4,4'-DDE	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
4,4'-DDT	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Aldrin	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
alpha-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
alpha-Chlordane	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
beta-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
delta-BHC	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Dieldrin	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endosulfan I	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endosulfan II	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endosulfan sulfate	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endrin	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endrin aldehyde	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Endrin ketone	BRL	0.0036		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
gamma-BHC	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
gamma-Chlordane	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Heptachlor	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Heptachlor epoxide	BRL	0.0018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Methoxychlor	BRL	0.018		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Toxaphene	BRL	0.18		mg/Kg-dry	279952	1	06/04/2019 12:58	UH
Surr: Decachlorobiphenyl	77.6	44.5-124		%REC	279952	1	06/04/2019 12:58	UH
Surr: Tetrachloro-m-xylene	68.9	45.1-120		%REC	279952	1	06/04/2019 12:58	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.036		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
2,4,5-TP (Silvex)	BRL	0.036		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
2,4-D	BRL	0.036		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
2,4-DB	BRL	0.18		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
Dalapon	BRL	0.36		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
Dicamba	BRL	0.036		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
Dichlorprop	BRL	0.036		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
Dinoseb	BRL	0.092		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
MCPA	BRL	3.6		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
MCPP	BRL	3.6		mg/Kg-dry	279950	1	06/03/2019 17:22	HB
Surr: DCAA	69.2	44-120		%REC	279950	1	06/03/2019 17:22	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

E Estimated (value above quantization range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-004

Client Sample ID: B-4-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D					(SW3050B)			
Arsenic	BRL	3.67		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Barium	19.8	3.67		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Cadmium	BRL	1.84		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Chromium	4.46	1.84		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Lead	3.91	3.67		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Selenium	BRL	3.67		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
Silver	BRL	1.84		mg/Kg-dry	279834	1	06/03/2019 15:54	DG
PERCENT MOISTURE D2216								
Percent Moisture	7.82	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-005

Client Sample ID: B-5-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.117		mg/Kg-dry	279985	1	06/03/2019 17:03	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
4,4'-DDE	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
4,4'-DDT	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Aldrin	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
alpha-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
alpha-Chlordane	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
beta-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
delta-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Dieldrin	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endosulfan I	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endosulfan II	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endosulfan sulfate	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endrin	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endrin aldehyde	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Endrin ketone	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
gamma-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
gamma-Chlordane	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Heptachlor	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Heptachlor epoxide	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Methoxychlor	BRL	0.020		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Toxaphene	BRL	0.20		mg/Kg-dry	279952	1	06/04/2019 13:09	UH
Surr: Decachlorobiphenyl	78.7	44.5-124		%REC	279952	1	06/04/2019 13:09	UH
Surr: Tetrachloro-m-xylene	77.2	45.1-120		%REC	279952	1	06/04/2019 13:09	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.039		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
2,4,5-TP (Silvex)	BRL	0.039		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
2,4-D	BRL	0.039		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
2,4-DB	BRL	0.20		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
Dalapon	BRL	0.39		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
Dicamba	BRL	0.039		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
Dichlorprop	BRL	0.039		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
Dinoseb	BRL	0.10		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
MCPA	BRL	3.9		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
MCPP	BRL	3.9		mg/Kg-dry	279950	1	06/03/2019 17:42	HB
Surr: DCAA	75.5	44-120		%REC	279950	1	06/03/2019 17:42	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
Project Name: Harbin Eng.
Lab ID: 1905U23-005

Client Sample ID: B-5-2'
Collection Date: 5/30/2019 9:00:00 AM
Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D								
					(SW3050B)			
Arsenic	5.57	3.57		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Barium	23.5	3.57		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Cadmium	BRL	1.78		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Chromium	31.0	1.78		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Lead	4.87	3.57		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Selenium	BRL	3.57		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
Silver	BRL	1.78		mg/Kg-dry	279834	1	06/03/2019 15:56	DG
PERCENT MOISTURE D2216								
Percent Moisture	15.1	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers: * Value exceeds maximum contaminant level
BRL Below reporting limit
H Holding times for preparation or analysis exceeded
N Analyte not NELAC certified
B Analyte detected in the associated method blank
> Greater than Result value

E Estimated (value above quantitation range)
S Spike Recovery outside limits due to matrix
Narr See case narrative
NC Not confirmed
< Less than Result value
J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-006

Client Sample ID: B-6-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.118		mg/Kg-dry	279985	1	06/03/2019 17:07	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
4,4'-DDE	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
4,4'-DDT	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Aldrin	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
alpha-BHC	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
alpha-Chlordane	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
beta-BHC	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
delta-BHC	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Dieldrin	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endosulfan I	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endosulfan II	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endosulfan sulfate	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endrin	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endrin aldehyde	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Endrin ketone	BRL	0.0039		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
gamma-BHC	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
gamma-Chlordane	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Heptachlor	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Heptachlor epoxide	BRL	0.0019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Methoxychlor	BRL	0.019		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Toxaphene	BRL	0.19		mg/Kg-dry	279952	1	06/04/2019 13:20	UH
Surr: Decachlorobiphenyl	79.7	44.5-124		%REC	279952	1	06/04/2019 13:20	UH
Surr: Tetrachloro-m-xylene	71.9	45.1-120		%REC	279952	1	06/04/2019 13:20	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.038		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
2,4,5-TP (Silvex)	BRL	0.038		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
2,4-D	BRL	0.038		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
2,4-DB	BRL	0.20		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
Dalapon	BRL	0.38		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
Dicamba	BRL	0.038		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
Dichlorprop	BRL	0.038		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
Dinoseb	BRL	0.099		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
MCPA	BRL	3.8		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
MCPP	BRL	3.8		mg/Kg-dry	279950	1	06/03/2019 18:04	HB
Surr: DCAA	72.6	44-120		%REC	279950	1	06/03/2019 18:04	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-006

Client Sample ID: B-6-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
METALS, TOTAL SW6010D					(SW3050B)			
Arsenic	BRL	3.95		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Barium	14.3	3.95		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Cadmium	BRL	1.97		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Chromium	22.0	1.97		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Lead	4.60	3.95		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Selenium	BRL	3.95		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
Silver	BRL	1.97		mg/Kg-dry	279834	1	06/03/2019 15:58	DG
PERCENT MOISTURE D2216								
Percent Moisture	14.1	0		wt%	R399624	1	06/04/2019 13:30	JW

Qualifiers: * Value exceeds maximum contaminant level
 BRL Below reporting limit
 H Holding times for preparation or analysis exceeded
 N Analyte not NELAC certified
 B Analyte detected in the associated method blank
 > Greater than Result value

E Estimated (value above quantitation range)
 S Spike Recovery outside limits due to matrix
 Narr See case narrative
 NC Not confirmed
 < Less than Result value
 J Estimated value detected below Reporting Limit



SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: WHITAKER LABS AES Work Order Number: 1905U23

2. Carrier: FedEx ☒ UPS ☐ Client ☐ Courier ☐ Other ☐

	Yes	No	N/A	Details			Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
4. Custody seals present on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
5. Custody seals intact on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
7. Cooler temperature(s) within limits of 0-8°C? (See Item 13 and 14 for temperature recordings.)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				

13. Cooler 1 Temperature 22.0 °C Cooler 2 Temperature _____ °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C
14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____ I certify that I have completed sections 1-15 (dated Initials), MJ 5/31/19

	Yes	No	N/A	Details			Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
17. Custody seals present on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
18. Custody seals intact on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				

27. Comments: _____ I certify that I have completed sections 16-27 (dated Initials), HB 5/31/19

	Yes	No	N/A	Details			Comments
28. Have containers needing chemical preservation been checked? *	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
29. Containers meet preservation guidelines?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
30. Was pH adjusted at Sample Receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH. I certify that I have completed sections 28-30 (dated Initials), HB 5/31/19



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 07, 2019

Donald Martin
Whitaker Laboratory

2500 Tremont Rd.
Savannah GA 31405

RE: Harbin Eng.

Dear Donald Martin:

Order No: 1905U23

Analytical Environmental Services, Inc. received
for the analyses presented in following report.

6 samples on 5/31/2019 10:16:00 AM

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/18-06/30/19.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/18-06/30/19 and Total Coliforms/ E. coli, effective 04/25/17-04/24/20.

-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Metals and PCM Asbestos), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/19.

These results relate only to the items tested as received. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Ioana Pacurar
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3080 Presidential Drive Atlanta, GA 30340-3704

Phone: (770) 457-8177 / Toll-Free: (800) 972-4889 / Fax: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 19-3023

Date: 5/30 Page 1 of 1

COMPANY: Whitaker Laboratory Inc		ADDRESS: 2500 Thurmont Rd South Ga 31405		ANALYSIS REQUESTED		REMARKS		Number of Containers	
PHONE: 224.0696		EMAIL: daniel@whitakerlab.com		PRESERVATION (see codes)		Visit our website www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.			
SAMPLE BY: B. Wilkinson / B. Jones		SIGNATURE: [Signature]		DATE		TIME			
#	SAMPLE ID	DATE	TIME	GRAB	COMPOSITE	MATRIX (see codes)			
1	B-1.2.1	5/30	9:00	✓			✓	✓	✓
2	B-2.2.1			✓			✓	✓	✓
3	B-3.2.1			✓			✓	✓	✓
4	B-4.2.1			✓			✓	✓	✓
5	B-5.2.1			✓			✓	✓	✓
6	B-6.2.1			✓			✓	✓	✓
7									
8									
9									
10									
11									
12									
13									
14									

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1. RW/BJ	6 PM	1. [Signature]	5:30 PM
2.		2. M. [Signature]	10:16 5/31/19
3.		3.	

SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD:	
2. B. [Signature]		OUT: 5/30/19	VIA: FedEx
		IN: client	US mail courier Greyhound

PROJECT INFORMATION		RECEIPT	
PROJECT NAME: Henrich Env.	PROJECT #:	Total # of Containers	18
SITE ADDRESS: Loms D. Newton Co.	INVOICE TO: [Signature]	TAT Requirements: <input checked="" type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same-Day Rush (auth req.) <input type="checkbox"/> Other	
STATE: GA	IF DIFFERENT FROM ABOVE:	STATE PROGRAM (if any): <input type="checkbox"/> E-mail <input checked="" type="checkbox"/> Fax <input type="checkbox"/>	
QUOTE #:	PO #:	DATA PACKAGE: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV	

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Samples are disposed of 90 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
Preservative Codes: HCl = Hydrochloric acid + Ice I = Ice only N = Nitric acid SH = Sulfuric acid + Ice S/M+I = Sodium Bisulfate/Methanol + Ice O = Other (specify) NA = None

Client: Whitaker Laboratory**Project:** Harbin Eng.**Lab ID:** 1905U23**Case Narrative****Sample Receiving Non-conformance:**

Samples were received at 22.0°C, outside required temperature range of 0-6°C. No ice or melted ice was present. The laboratory proceeded per client history. Furthermore, one sample jar for B-2-2', B-5-2', B-6-2' was received broken. The laboratory proceeded with analysis on the remaining jars received.

Analytical Environmental Services, Inc

Date: 7-Jun-19

Client: Whitaker Laboratory
 Project Name: Harbin Eng.
 Lab ID: 1905U23-001

Client Sample ID: B-1-2'
 Collection Date: 5/30/2019 9:00:00 AM
 Matrix: Soil

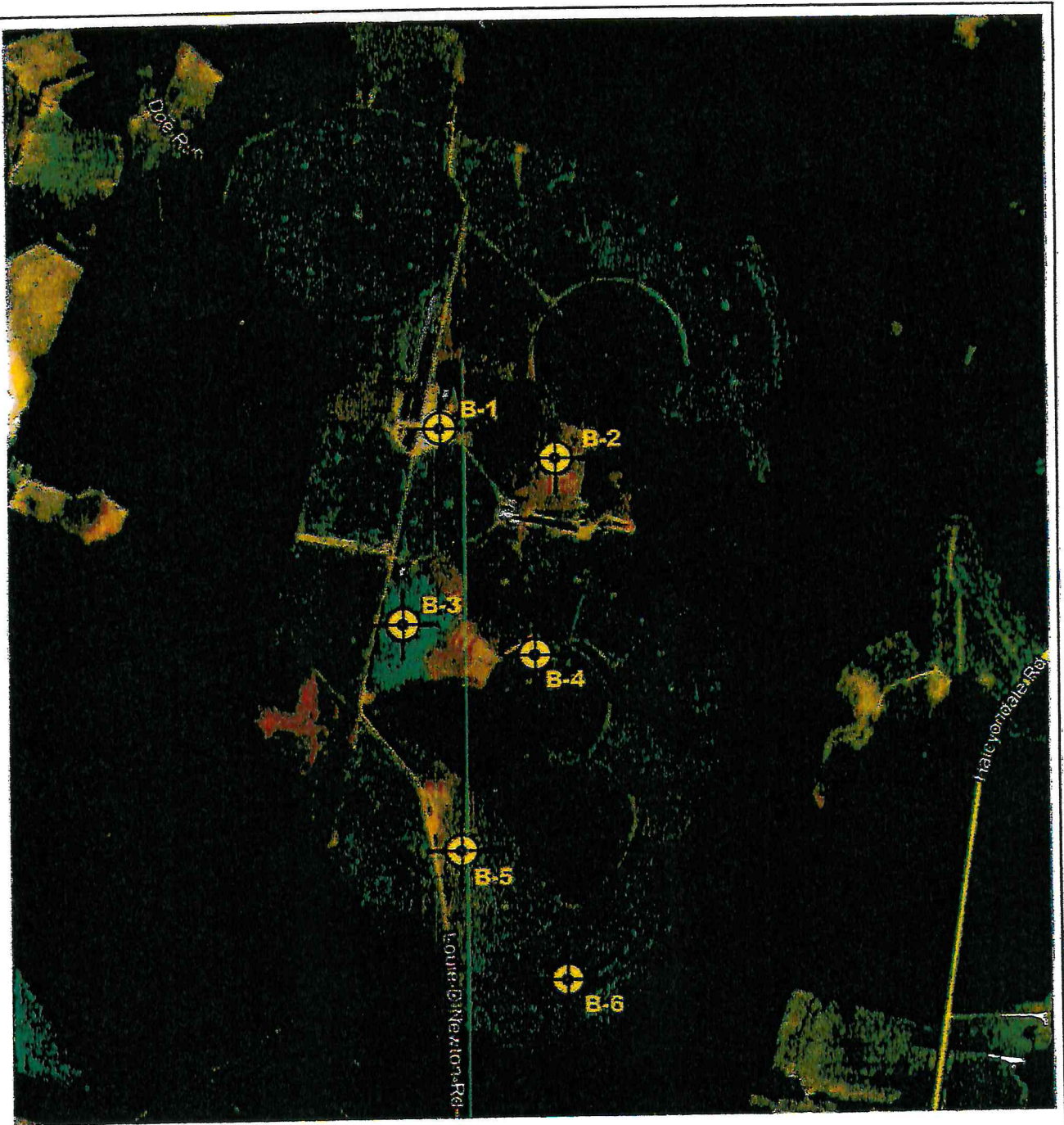
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B (SW7471B)								
Mercury	BRL	0.120		mg/Kg-dry	279985	1	06/03/2019 16:43	EH
CHLORINATED PESTICIDES, TCL SW8081B (SW3550C)								
4,4'-DDD	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
4,4'-DDE	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
4,4'-DDT	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Aldrin	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
alpha-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
alpha-Chlordane	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
beta-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
delta-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Dieldrin	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endosulfan I	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endosulfan II	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endosulfan sulfate	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endrin	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endrin aldehyde	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Endrin ketone	BRL	0.0040		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
gamma-BHC	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
gamma-Chlordane	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Heptachlor	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Heptachlor epoxide	BRL	0.0020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Methoxychlor	BRL	0.020		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Toxaphene	BRL	0.20		mg/Kg-dry	279952	1	06/04/2019 12:24	UH
Surr: Decachlorobiphenyl	75.4	44.5-124		%REC	279952	1	06/04/2019 12:24	UH
Surr: Tetrachloro-m-xylene	74.2	45.1-120		%REC	279952	1	06/04/2019 12:24	UH
CHLORINATED HERBICIDES SW8151A (SW3550C)								
2,4,5-T	BRL	0.040		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
2,4,5-TP (Silvex)	BRL	0.040		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
2,4-D	BRL	0.040		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
2,4-DB	BRL	0.20		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
Dalapon	BRL	0.40		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
Dicamba	BRL	0.040		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
Dichlorprop	BRL	0.040		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
Dinoseb	BRL	0.10		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
MCPA	BRL	4.0		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
MCPP	BRL	4.0		mg/Kg-dry	279950	1	06/03/2019 16:18	HB
Surr: DCAA	74.3	44-120		%REC	279950	1	06/03/2019 16:18	HB
METALS, TOTAL SW6010D (SW3050B)								

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

BORING LOCATION PLAN



Boring Location Plan

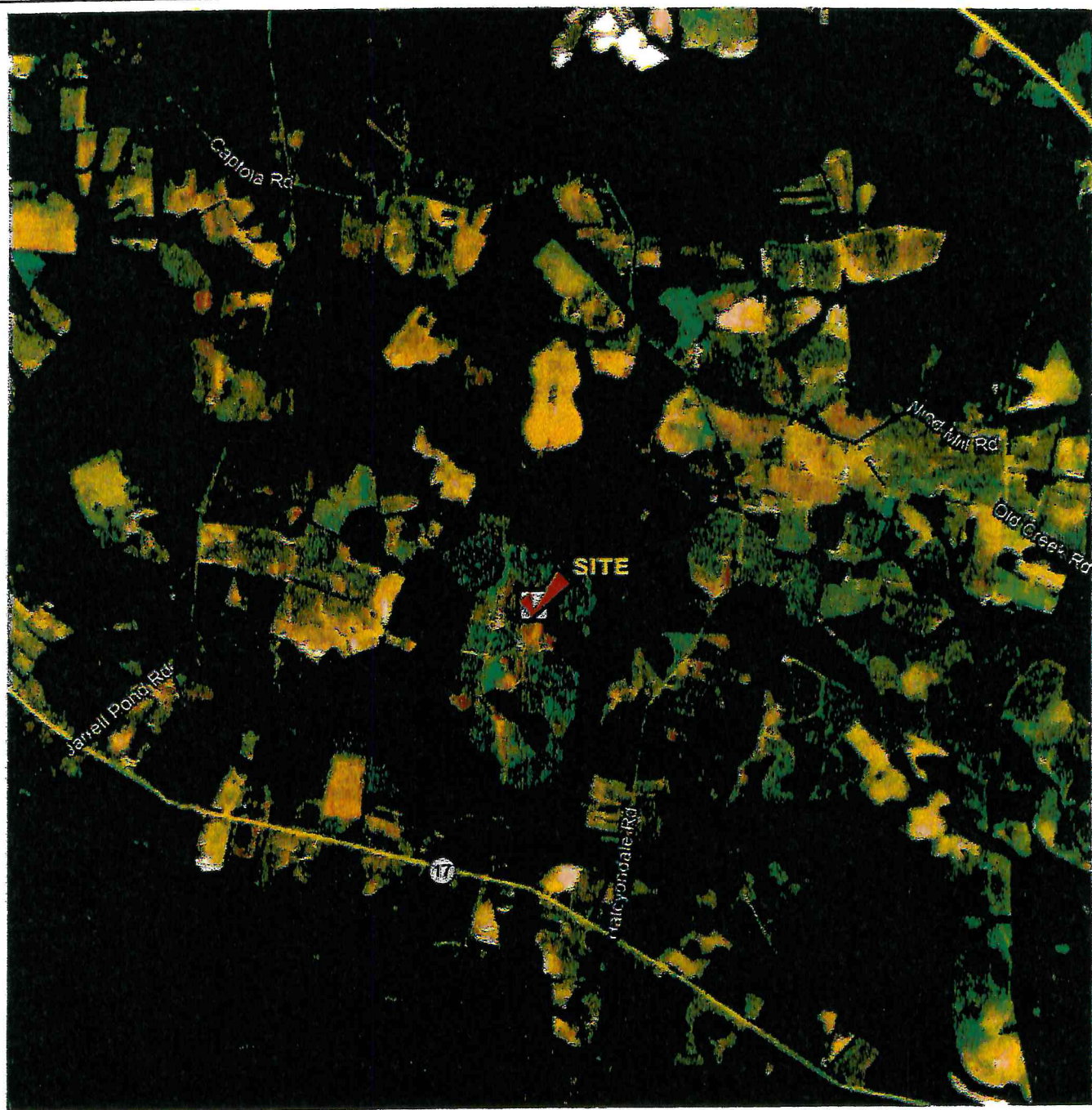
Atlantic Waste
Louis D. Newton Road
Screven County, Georgia



ALL BORING LOCATIONS ARE APPROXIMATE, & ARE BASED ONLY ON FIELD ESTIMATES.

WHITAKER LABORATORY, INC.





Site Vicinity Map

Atlantic Waste
Louis D. Newton Road
Screven County, Georgia



INSURANCE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
09/28/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Risk Strategies Company 1255 Lakes Parkway #105 Lawrenceville GA 30043		CONTACT NAME: Ambrosia Patton PHONE: 678-690-5995 FAX: (678) 690-5995 E-MAIL: apatton@risk-strategies.com ADDRESS:																									
INSURED Whitaker Laboratory, Inc. P. O. Box 7078 Savannah GA 31405		INSURER(S) AFFORDING COVERAGE <table border="1"> <tr> <td>INSURER A:</td> <td>Travelers Indemnity Co of Amer</td> <td>NAIC #</td> <td>25665</td> </tr> <tr> <td>INSURER B:</td> <td>Travelers Property Casualty Company of America</td> <td>NAIC #</td> <td>25674</td> </tr> <tr> <td>INSURER C:</td> <td>The Travelers Indemnity Co</td> <td>NAIC #</td> <td>25658</td> </tr> <tr> <td>INSURER D:</td> <td>Berkley Insurance Company</td> <td>NAIC #</td> <td>32603</td> </tr> <tr> <td>INSURER E:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> <td></td> <td></td> </tr> </table>		INSURER A:	Travelers Indemnity Co of Amer	NAIC #	25665	INSURER B:	Travelers Property Casualty Company of America	NAIC #	25674	INSURER C:	The Travelers Indemnity Co	NAIC #	25658	INSURER D:	Berkley Insurance Company	NAIC #	32603	INSURER E:				INSURER F:			
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INSURER E:																											
INSURER F:																											

COVERAGES

CERTIFICATE NUMBER: CL1892178180

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR. CAT.	TYPE OF INSURANCE	ADD'L SURG. (USD) (Y/N)	POLICY NUMBER	POLICY EXP. (MM/DD/YYYY)	POLICY EXP. (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:		68021685078	09/23/2018	09/23/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Per occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY		8A7E259750	09/23/2018	09/23/2019	COMBINED SINGLE LIMIT (Per occurrence) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000		CUP7E270570	09/23/2018	09/23/2019	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below:	Y/N	UB5J777797	09/23/2018	09/23/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000 Each Claim \$1,000,000 Annual Aggregate \$2,000,000
D	Professional Liability		AEC-9023034-01	09/23/2018	09/23/2019	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

M.B. Chisler

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ACORD 25 (2/18/03)

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