ATTACHMENT 1

SECTION 09900

SECTION 09900

PAINTS AND COATINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This work shall consist of painting new pre-engineered metal building provided for the HHW.

B. Painting shall conform to the provisions specified in these specifications and as shown on the plans or directed by the Engineer.

1.02 WEATHER CONDITIONS

A. Paint shall be applied only on thoroughly dry surfaces and during periods of favorable weather. Blast cleaning or application of solvent-borne paint will not be permitted when the atmospheric of surface temperature is at or below 2ºC or above 38ºC, or when the relative humidity exceeds 85 percent at the site of the work. Application of water-borne paint will not be permitted when the atmospheric or surface temperature is at or below 10ºC, or above 38ºC, or when the relative humidity exceeds 75 percent at the site of the work. Application of paint will not be permitted when the steel surface temperature is less than 3º C above the dew point, or when freshly painted surfaces may become damaged by rain, fog or condensation, or when it can be anticipated that the atmospheric temperature or relative humidity will not remain within the specified application conditions during the drying period, except as provided in the following paragraph for enclosures. If fresh paint is damaged by the elements it shall be replaced or repaired by the Contractor at the Contractor's expense.

B. Subject to approval by the Engineer in writing, the Contractor may provide suitable enclosures to permit painting during inclement weather. Provisions shall be made to control atmospheric conditions artificially inside the enclosures within limits suitable for painting throughout the painting operation and drying period. Full compensation for providing and maintaining the enclosures shall be considered as included in the prices paid for the various contract items of work requiring paint and no additional compensation will be allowed therefor.

1.03 APPLICATION

A. The Contractor shall notify the Engineer, in writing, at least one week in advance of the date cleaning and painting operations are to begin.

B. Painting shall be done in a neat and workmanlike manner. Unless otherwise specified, paint shall be applied by brush, or spray, or roller, or any combination of these methods. Airless spray methods shall not be used.

C. Each application of paint shall be thoroughly cured and any skips, holidays, thin areas or other deficiencies corrected before the succeeding application. The surface of the paint being covered shall be free from moisture, dust, grease or any other deleterious material which would prevent the bond of the succeeding applications. In spot painting, old paint which lifts after the first application, shall be removed by scraping and the area repainted before the next application.

D. Unless otherwise specified, should 7 days elapse between paint applications, the painted surface shall be water rinsed prior to the next paint application. Water rinsing is defined as a pressurized water rinse with a minimum nozzle pressure of 8 MPa. During rinsing, the tip of the pressure nozzle shall be placed between 300 mm and 450 mm from the surface to be rinsed. The nozzle shall have a maximum fan tip angle of 30º.

E. Brushes, when used, shall have sufficient body and length of bristle to spread the paint in a uniform film. Paint shall be evenly spread and thoroughly brushed out.

F. On all surfaces which are inaccessible for painting by regular means, the paint shall be spread by sheepskin daubers, bottle brushes or by any other means approved by the Engineer.

G. Rollers, when used, shall be of a type which do not leave a stippled texture in the paint film.

H. Runs, sags, thin and excessively thick areas in the paint film, skips and holidays, or areas of non-uniform appearance shall be considered as evidence that the work is unsatisfactory, and the Contractor may be required to blast clean the areas and reapply the paint.

I. A water trap acceptable to the Engineer shall be furnished and installed at each spray pot.

J. Mechanical mixers shall be used to mix paint. Prior to applying, the paint shall be mixed a sufficient length of time to thoroughly mix the pigment and vehicle together.

K. Precautions in the handling and the application of paints shall be in conformance with all applicable occupational safety and health standards, rules, regulations and orders established by the State of Florida.

1.04 THINNING PAINT

A. Paints be formulated ready for application and no thinning will be allowed unless otherwise provided in the specifications or permitted by the Engineer, in writing.

1.05 PROTECTION AGAINST DAMAGE

A. The Contractor shall provide protective devices, such as tarps, screens or covers, as necessary to prevent damage to the work and to other property or persons from all cleaning and painting operations.

B. Paint or stains which result in an unsightly appearance on surfaces not designated to be painted shall be removed or obliterated by the Contractor at the Contractor's expense and to the satisfaction of the Engineer.

C. If traffic causes an objectionable amount of dust, the Contractor, when directed by the Engineer, shall sprinkle the adjacent roadbed and shoulders with water or dust palliative for a sufficient distance on each side of the location where painting is being done, and the application will be paid for as provided in the Contract for extra work.

D. All painted surfaces that are marred or damaged as a result of operations of the Contractor shall be repaired by the Contractor, at the Contractor's expense, with materials and to a condition equal to that of the coating specified herein or on the drawings.

E. Upon completion of all painting operations and of any other work that would cause dust, grease or other foreign materials to be deposited upon the painted surfaces, the painted surfaces shall be thoroughly cleaned.

PART 2 - PAINTING STEEL

2.01 GENERAL

A. Cleaning and painting of steel shall conform to the provisions in Part 1 "General", and this Part.

B. All exposed surfaces of steel and other metals, except galvanized or metalized surfaces, shall be cleaned and painted.

2.02 SURFACE PREPARATION

A. All surfaces of new steel or other metals which are to be painted shall be blast cleaned unless otherwise approved in writing by the Engineer.

B. In repainting existing steel the method of cleaning will be as specified by the Engineer. Any damage to sound paint, on areas not designated for treatment, resulting from the Contractor's operations shall be repaired by the Contractor at the Contractor's expense to the satisfaction of the Engineer.

2.03 BLAST CLEANING

A. Abrasives used for blast cleaning shall be either clean dry sand, mineral grit, steel shot or steel grit, at the option of the Contractor, and shall be of a grading suitable to produce satisfactory results. The use of abrasives other than those specified in this section will not be permitted unless authorized in writing by the Engineer.

B. Unwashed beach sand containing salt or excessive amounts of silt will not be allowed.

C. Exposed steel or other metal surfaces to be blast cleaned shall be cleaned in conformance with the requirements in Surface Preparation Specification No 6, "Commercial Blast Cleaning", of the Steel Structures Painting Council. Blast cleaning shall leave all surfaces with a dense, uniform, angular anchor pattern of not less than 35 цm as measured in conformance with the requirements in ASTM Designation: D 4417.

D. Attention is directed to the regulations for abrasive blasting operations adopted by the State of Florida.

E. When blast cleaning is being performed near machinery, all journals, bearings, motors and moving parts shall be sealed against entry of abrasive dust before blast cleaning begins.

F. Blast cleaned surfaces shall be primed or treated the same day blast cleaning is done, unless otherwise authorized by the Engineer. If cleaned surfaces rust or are contaminated with foreign material before painting is accomplished, the surfaces shall be recleaned by the Contractor at the Contractor's expense.

2.04 STEAM CLEANING

A. All dirt, grease, loose chalky paint or other foreign material which has accumulated on the previously painted or galvanized surfaces shall be removed with a steam cleaning apparatus which shall precede all other phases of cleaning. The temperature of the steam produced by the steam cleaning apparatus shall be between 130°C and 190°C at the nozzle. Gloss on the existing paint shall be removed without out removing sound paint. Areas of gloss on the existing paint that are not removable by steam cleaning and rinsing shall be lightly roughened by sanding with 100- to 200- grit sandpaper. Any paint which becomes loose, curled or lifted or loses its bond with the preceding coat or coats after steam cleaning, shall be removed to sound paint or metal surface by the Contractor at the Contractor's expense.

B. A biodegradable detergent shall be either added to the feed water of the steam generator or applied to the surface to be cleaned. The detergent shall be of such composition and shall be added or applied in such quantity that the cleaning as provided in the above paragraph is accomplished.

C. Steam cleaned surfaces shall be rinsed clean with fresh water to remove any residue, detergent or other foreign material.

D. Steam cleaning shall not be performed more than 2 weeks prior to painting or other phases of cleaning.

E. Subsequent painting shall not be performed until the cleaned surfaces are thoroughly dry and in no case in less than 24 hours after cleaning.

2.05 HAND CLEANING

A. Dirt, loose rust and mill scale, or paint which is not firmly bonded to the surfaces shall be removed in conformance with the requirements in Surface Preparation Specification No. 2, "Hand Tool Cleaning", of the Steel Structures Painting Council. Edges of old remaining paint shall be feathered.

B. Pneumatic chipping hammers shall not be used unless authorized in writing by the Engineer.

2.06 PAINT

A. The primer coat for new or existing steel or other metal surfaces shall be a single coat of a cycloaliphatic amine epoxy, Carboguard 893 as furnished by Carboline Company, St. Louis MO. or an approved equal. The single coat shall be not less than 5 mils in thickness and shall be gray in color.

B. The topcoat shall be a single coat of analiphatic polyester polyurethane, Carbothane 133 HB as furnished by Carboline Company, St. Louis MO. or an approved equal. The single coat shall be not less than 5 mils in thickness. The color of the topcoat shall be selected by the Owner.

2.07 PAINTING

A. Painting of new steel shall be done at the following stages of construction unless otherwise approved in writing by the Engineer.

1. Steel shall be blast cleaned and painted with the total thickness of undercoats before erection. Finish coats and final coats shall be applied after erection. After erection and deck placement, but before applying subsequent paint, areas where paint has been damaged or has deteriorated and exposed unpainted surfaces shall be thoroughly cleaned, including removal of foreign substances, and surfaces shall be spot painted with undercoats to the specified thickness. Damaged areas of undercoat paint shall be blast cleaned and painted as specified by the Engineer.

2. Surfaces exposed to the atmosphere and which would be inaccessible for painting after erection shall be painted the full number of applications prior to erection.

B. Blast cleaning, except that performed within closed buildings, and all painting shall be performed during daylight hours unless the terms of the contract prohibit work being performed during daylight hours.

C. Contact surfaces of stiffeners, railings, built up members or open seam exceeding 12 mm in width that would retain moisture, shall be caulked with non-silicone type sealing compound conforming to the requirements in Federal Specification TT-S-230, Type II, or other approved material. The sealing compound shall be applied no sooner than 72 hours after the last application of undercoat, unless otherwise revised in writing by the Engineer. The sealing compound shall cure as recommended by the manufacturer prior to the water rinsing and application of the first finish coat. When no finish coats are applied, the sealing compound shall be gray in color.

D. The dry film thickness of the paint will be measured in place with a calibrated Type 2 magnetic film thickness gage in conformance with the requirements of Steel Structure Painting Council Specification SSPC-PA2.

E. The thickness of each application shall be limited to that which will result in uniform drying throughout the paint film.

F. Succeeding applications of paint shall be of such shade as to slightly contrast with the paint being covered.

G. Except for anchor bolt assemblies, metal surfaces embedded in concrete need not be panted. Ungalvanized anchor bolt assemblies shall be painted prior to installation with 2 applications of unthinned zinc-rich primer (organic vehicle type). Aerosol cans shall not be used.

2.08 APPLICATION OF PRIMER

A. Painting with primer shall conform to the provisions in Section 2.7, “Painting” and this Section.

B. Primer shall be applied by spray methods. On areas inaccessible to spray application, limited applications may be made by brush, daubers or rollers.

C. Mechanical mixers shall be used in mixing the primer. After mixing, the primer shall be strained through a 0.4- to 0.8- mm screen or a double layer of cheesecloth immediately prior to or during pouring into the spray pot.

D. An agitating spray pot shall be used in all spray application of primer. The agitator or stirring rod shall reach to within 50 mm of the bottom of the spray pot and shall be in motion at all times during primer application. The motion shall be sufficient to keep the primer well mixed.

E. Cured primer shall be free from dust, dirt, salt or other deleterious deposits and thoroughly cured before applying subsequent coats.

2.09 PAYMENT

A. Cleaning and painting steel will be paid for on the basis of lump sum prices, unless otherwise specified by the Engineer.

B. The lump sum prices paid for clean steel and for paint steel or the lump sum price paid for clean and paint steel shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cleaning and painting steel as shown on the plans, and as specified in these specifications and as directed by the Engineer.

PART 3 - PAINTING GALVANIZED SURFACES (Not Used)

END OF SECTION

ATTACHMENT 2

EXCAVATION AND DISPOSAL PLAN APRIL 24, 2018

Environmental Consultants
and Contractors

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407-204-3231
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SCS ENGINEERS

April 24, 2018

Ms. Kimberly Rush, P.E.
Permitting and Waste Cleanup
Program Administrator
Florida Department of Environmental Protection - Central District
3319 Maguire Blvd.
Orlando, Florida 32803

Subject: Excavation and Disposal Plan
Porter Transfer Station Site Improvements
Orlando, Florida
DEP Permit No. 002463-005-SO Facility ID: 21788

Dear Ms. Rush:

On behalf of the Orange County Utilities Solid Waste Division (OCUSWD), SCS Engineers is submitting the following Excavation and Disposal Plan for the upcoming Porter Transfer Station Site Improvements project. OCUSWD expects to commence construction of a new scale, scalehouse, elevated citizen's drop off area, and household hazardous center in July 2018. Figure 1 presents a layout of the proposed project.

The purpose of this Excavation and Disposal Plan is to address the excavation, disposal, backfilling, compacting, and grading that will occur at the Porter Transfer Station (the former Good Homes Landfill). No dewatering is anticipated during the project. OCUSWD plans to continue operating the transfer station throughout this construction project. If you have any questions regarding the information contained herein, please contact us at (407)204-3231.

Sincerely,

David M. Beben, P.E.
Senior Project Professional
SCS ENGINEERS

Shane Fischer, P.E.
Project Director
SCS ENGINEERS

DMB/SF:ks

cc: Jim Flynt, PE, Orange County
Dan Courcy, PE, Orange County
David Gregory, Orange County

SCS ENGINEERS







EXCAVATION AND DISPOSAL PLAN FOR THE PORTER TRANSFER STATION SITE IMPROVEMENTS

Porter Transfer Station
1326 Good Homes Rd
Orlando, Orange County, Florida

Prepared for:

Orange County Utilities
5901 Young Pine Rd
Orlando, Florida 32829

Presented by:

SCS ENGINEERS
5850 S. Semoran Blvd,
Orlando, FL 32822
(407) 204-3231
Certificate of Authorization No.

File No. 09216054.01
April 2018

EXCAVATION AND DISPOSAL PLAN FOR THE PORTER TRANSFER STATION SITE IMPROVEMENTS 1326 GOOD HOMES ROAD ORLANDO, FLORIDA 32818

Prepared for:

Orange County Utilities
5901 Young Pine Rd
Orlando, Florida 32829
Presented by:

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(407) 204-3231

File No. 09216054.01
April 2018

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List of Appendices

I. INTRODUCTION

This following Excavation and Disposal Plan (Plan) has been prepared for the proposed Porter Transfer Station Site Improvements Project in Orlando, Florida. The Site Improvements Project (Project) includes construction of a new scale, scalehouse, elevated citizen's drop of area, and household hazardous waste center as shown in Figure 1. The Project will require disturbance of the landfill final cover, waste handling, and waste excavation. A copy of the Plan shall be kept on site during the excavation activities.

This Plan has been prepared in accordance with the Florida Department of Environmental Protection's (FDEP) "Guidance for Disturbance and Use of Old Closed Landfills or Waste Disposal Site's in Florida", dated August 19, 2015 which is included as Appendix A to this Plan. Appendix B contains historic documentation about the depth to waste and waste thickness encountered during previous investigations of the Good Homes Landfill.

II. APPLICABLE NOTES

A. The Porter Transfer Station is located at the former Good Homes Landfill, a closed, unlined municipal solid waste landfill that operated from 1966 to approximately February 1973.

B. The Contractor shall comply with all applicable federal, state, and local codes applicable to the work, including, but not limited to building and construction codes, environmental codes, and health and safety codes.

C. The proposed construction activities are within a former landfill and therefore the potential for exposure to contaminated water, soil and air exists. Documents relevant to the contamination at the site can be obtained via the FDEP's on-line document management system (OCULUS) and the Geotechnical Report prepared by Blue Marlin located in Appendix A of the Contract Documents.

D. Construction shall be accomplished in a safe manner and in strict compliance with all the requirements of the Federal Occupational Safety and Health Act Of 1970, and all state and local safety and health regulations.

E. Waste relocation procedures shall be in accordance with Florida Department Of Environmental Protection (FDEP) requirements located in the Florida Administrative Code (FAC) Chapter 62-701; Guidance for Disturbance and Use of Closed Landfills or Waste Disposal Areas in Florida (FDEP, August 2015).

F. Refer to Appendix B of this Plan for documentation about the characterization, depth and thickness of buried waste at this site. Within the vicinity of the project, it is anticipated that waste will be encountered from approximately 6 ft to 18 feet below ground surface (bgs).

G. The areas of waste excavation will be at two 70 ft. by 13 ft. transfer trailer bays and the associated ramps at the proposed Citizen's Drop off Area. The Contractor shall excavate up to twelve feet below ground surface.

III. PRE-CONSTRUCTION RESPONSIBILITIES

A. The Contractor shall provide to the Engineer and County a site-specific Health and Safety Plan (HASP) for employees and subcontractors. The County and/or Engineer may comment on the HASP as a courtesy. However, it is the Contractor's sole responsibility to develop and implement a HASP to comply with all applicable health and safety regulations. A copy of the HASP shall be maintained at all times at the jobsite and be available for inspection by the County and/or Engineer.

IV. WASTE HANDLING PROCEDURES

A. Best Management Practices (BMPs) shall be implemented during waste excavation activities at the site. These BMPs are listed below.

1. The FDEP shall be notified in writing at least three working days prior to the commencement of any waste excavation activity.

2. Prior to waste excavation in the areas that already received six inches of cover or greater, the cover material may be relocated to a designated staging area, and used once the waste excavation is completed and area is graded. The soil must meet the requirements of the Contract Documents and be approved for re-use by the Engineer in an appropriate manner.

3. Excavated solid waste shall be disposed of at a Class I landfill (the Orange County Solid Waste Management Facility) for non-hazardous waste in compliance with local, state, and federal requirements. Waste shall be excavated and loaded to an Owner-designated area or transfer trailer at the project site. The County will not charge the Contractor a tipping fee.

4. Waste suspected of being hazardous shall be segregated and subsequently inspected and tested to determine if it is a characteristic hazardous waste. Orange County shall be notified immediately. The FDEP shall be notified within 24 hours if the waste is found to be hazardous and the waste will be managed and disposed in accordance with applicable regulations. Refer to the Porter Transfer Station Contingency Plan prepared by SCS Engineers dated July 2017 for further information regarding the site's contingency plan.

5. Cover shall be placed on the exposed waste at the end of each working day. Initial cover may consist of clean fill, Recycled Screened Material (RSM), or acceptable Alternative Daily Cover (ADC), such as foam-based cover or tarps. The cover shall be sufficient to minimize adverse environmental, safety, or health effects, such as those resulting from birds, blowing litter, odors, disease vectors, or fires.

A temporary cover, such as a tarp, may be used in areas where additional solid waste will be cut or filled within 18 hours of the conclusion of work, which may be removed prior to deposition of additional waste.

6. After proposed final waste grade is achieved in an area, the area will be graded and covered with six-inches of soil cover or other approved material or ADC until development activities are complete. In the event that an ADC material is utilized, consideration will be given to the ADC's performance based on weather conditions (wind and rain), manufacturer recommendations, and life expectancy. Accordingly, proper supervision for the correct application of the ADC and maintenance/replacement will be performed, as necessary. Final waste grade slopes will not be steeper than a 4 (horizontal):1 (vertical) ratio.

7. Stormwater runoff that is generated by the activity will be controlled on site by temporary cover, as listed above, and re-direction of stormwater sheet flow to the appropriate permanent or temporary drainage areas.

8. Erosion control methods (silt fence, etc.) shall be implemented in accordance with the site's Stormwater Pollution Prevention Plan (SWPPP) and the NPDES generic permit for Stormwater discharge from large and small construction activities (CGP).

9. The Contractor shall meet the requirements that apply to the former Good Homes Landfill including a minimum of two-feet of soil cover over waste.

V. CONTROL OF ODORS AND VECTORS

A. The Contractor shall be responsible for odor monitoring, odor control, and vector management of the Project area.

B. The Contractor shall complete a combustible gas survey of ambient air conditions at the site before the wastes are removed and again within ninety days after removal. Combustible gases in confined spaces must not exceed twenty-five percent of the lower explosive limit of methane. Ambient air monitoring must also be conducted periodically during excavation to ensure conditions for combustible gases are not being created. Odors shall be monitored at the Project boundaries and a more detailed odor control plan will be developed if deemed necessary.

C. Vectors, animals, or insects that transmit pathogens will be kept within acceptable limits. The primary safeguards against vector problems are maintaining the excavation as small as possible, providing cover on exposed waste, and eliminating water-ponding. Well-compacted wastes and cover material effectively prevent vectors emerging from or burrowing into wastes.

VI. EARTHWORK

A. The cut areas will be cut to grade using an excavator and off road trucks in accordance with Contract Documents.

B. The Contractor shall not fill excavated areas with refuse.

C. Compaction of the exposed waste surface shall be performed using a heavy compactor model as required by the geotechnical report recommendations and Contract Documents. The compactor will make at least six crisscross passes under full energy.

VII. WHITE GOODS AND TIRE MANAGEMENT PLAN

A. White goods and tires that are recovered during waste excavation shall be separated and transported to the appropriate storage areas. These items shall be managed in accordance with the current transfer station permit and operation plan.

VIII. STORMWATER RUN-ON CONTROL PLAN

A. Stormwater shall be diverted from entering the excavation face by construction of diversion berms, and grading the surface in such a way that the stormwater flows away from the working face. Additionally, the stormwater that comes into contact with excavated waste shall not leave the excavated area. Excavation shall begin at the lowest elevation and generally proceed upslope.

IX. RUNOFF MANAGEMENT

A. Stormwater which contacts the active excavation areas shall not be allowed to run outside of the excavation area. Water that contacts waste shall be contained within the excavation area and not drain beyond it. Waste excavation shall not continue in areas where there is ponded water until it has drained.

B The Contractor shall have a trash pump on-site during excavation and may pump liquids to the on-site lift station. De-watering is not anticipated. The Contractor shall notify the Engineer and Owner immediately if it needs to dewater.

X. DUST AND LITTER CONTROL PLAN

A. The Contractor shall be responsible for dust and litter control. If excessive dust is observed, water shall be sprayed over the problem areas by the Contractor. Litter generated from the project shall immediately collected by the Contractor for disposal. Additional litter-control devices such as portable fences may be used to control litter

blowing away from waste excavation and screening operations on an as-needed basis to supplement litter control.

XI. EXCAVATION AREA COVER

A. The Contractor shall provide a minimum of 24 inches of soil cover over waste after excavation. The excavated waste is anticipated to be composed of mostly sandy soil, along with well-decomposed organic municipal solid waste and construction debris. Application of 6 inches of soil cover or other cover discussed in Seciton IV shall be applied if the exposed sand/waste mix slope of the excavation is not anticipated to be further excavated within 30 days.

APPENDIX A

FDEP's "Guidance for Disturbance and Use of Old Closed Landfills of Waste Disposal Areas in Florida", Version 2.2, dated August 2015

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SCS ENGINEERS

FIGURE 1. EXCAVATION AND DISPOSAL PLAN
PORTER TRANSFER STATION SITE IMPROVEMENTS PROJECT

GUIDANCE FOR DISTURBANCE AND USE OF OLD CLOSED LANDFILLS OR WASTE DISPOSAL AREAS IN FLORIDA

Version 2.2
FINAL

August 19, 2015

Prepared by:

Department of Environmental Protection
Solid Waste Section
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DISCLAIMER

The information contained in this document is intended for guidance only. It is not a rule and does not create any standards or criteria which must be followed by the regulated community. Furthermore, compliance with this document does not relieve the owner or operator from the responsibility for complying with the Department's rules nor from any liability for environmental damages caused by the disturbance of or activities near old landfills or waste disposal areas.

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APPENDICES

LIST OF ACRONYMS

EDP	Excavation and Disposal Plan
EPA	U. S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
GWMP	Ground Water Monitoring Plan
HRA	Health Risk Assessment
MOP	Monitoring Only Plan
NELAP	National Environmental Laboratory Accreditation Program
PCAP	Preliminary Contamination Assessment Plan
PCAR	Preliminary Contamination Assessment Report
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RSM	Recovered Screened Material
RTL	Reuse Target Level
SPLP	Synthetic Precipitation Leaching Procedure
SSW	Screened Solid Waste
WPF	Waste Processing Facility
WTE	Waste-to-Energy

1.0 BACKGROUND AND PURPOSE

In the past, the Florida Department of Environmental Protection (Department) has received notifications that old landfills or old disposal areas were unexpectedly discovered during various construction projects. The Department has also been contacted by property owners who were seeking to develop property which was known to contain areas where waste had been disposed. As such, the Department was asked to provide guidance regarding proper management of waste for similar situations. Questions are typically raised about the relocation of wastes, where they can be properly disposed, permitting requirements, back-filling of excavated areas, use of screened material from the waste and ground water monitoring requirements.

There have also been situations where development projects, such as residential housing units, schools, recreational areas or retail businesses, have been constructed on top of or adjacent to old disposal areas. Some of these projects have resulted in considerable health and safety concerns for individuals living or working near these disposal areas and for the integrity of the environmental protection measures that may be in place at the disposal sites.

The potential risks from old disposal sites may vary considerably and are usually not well understood. This can be due to a variety of factors such as a lack of records on the types of waste disposed at a site or a lack of data on the generation and fate of gases and leachate from these wastes. For example, some wastes contain more biodegradable material than others and as a result may generate more methane gas under anaerobic conditions causing odors and green house gases. Or, due to the age of the wastes, they may have stabilized to the point that gas generation is no longer of concern. If gases are still being generated, they may or may not be migrating off-site depending on the specific geological and physical features of the site. Also, since these old disposal sites were unlined, impact to ground water from leachate generation may be a problem, but this can not be determined without a ground water investigation.

Due to the difficulties encountered in dealing with these old sites, the Department has been asked to develop recommendations for managing the problems arising from construction near or over them. Consequently, this document is intended to provide guidance to the regulated community on the Department's requirements and recommendations for disturbing or using old, closed landfills or disposal areas. While owners of these old sites are encouraged to use this guidance, this document is not a rule and does not create any standards or criteria which must be followed by the regulated community.

The original document for this guidance was issued on May 3, 2001. Since that time, changes have occurred which require the Department to update this document. For example, on April 17, 2005, Chapter 62-780, Florida Administrative Code (F.A.C.) became effective. This new chapter establishes the procedures for the assessment and cleanup of contaminated sites when it has been established that a person is legally responsible for conducting site rehabilitation or when a person voluntarily rehabilitates a

contaminated site. As a result, the previous process used by the Department, (i.e., the process known as Corrective Actions for Contaminated Site Cases) is an obsolete tool and individuals choosing to conduct contamination assessment and possibly cleanup are now encouraged to use the process identified in Chapter 62-780, F.A.C. In addition, concentrations for some of the Reuse Target Levels (RTLs) listed in the original document have been changed. Consequently, this guidance document needed to be revised to implement these updates. This revision was completed on June 3, 2009 in version 2.0. The basic processes contemplated in the original document remained the same. This version of the document dated February 3, 2011, version 2.1, merely updated some statute and rule references that had changed since version 2.0 was issued.

2.0 APPLICABILITY

In general, this document only applies to old disposal sites that are inactive, i.e. no longer receiving wastes, and can normally be placed into one of three categories:

(1) old permitted landfills that had a final cover[1] installed before July 1, 1985 without a closure permit;
(2) old disposal sites, such as dumps, open dumps and promiscuous dumps, that were operated and closed without permits and which may have had few or no records available of their operations; and
(3) construction and demolition (C&D) debris disposal areas which were operated and closed prior to August 2, 1989.

The application of this document to any other sites will be determined on a case-by-case basis by the Department.

For the purposes of this document, a "landfill" means a Class I, II or III landfill as it is currently defined in the Department's Solid Waste Management Facilities rule, Chapter 62-701, F.A.C. Also, C&D debris[2] in this document means the same as it is currently defined in Section 403.703(6), Florida Statutes (F.S.) which reads:

> (6) "Construction and demolition debris" means discarded materials generally considered to be not water-soluble and nonhazardous in nature, including, but not limited to, steel, glass, brick, concrete, asphalt roofing material, pipe, gypsum wallboard, and lumber, from the construction or destruction of a structure as part of a construction or demolition project or from the renovation of a structure, and includes rocks, soils, tree remains, trees, and other vegetative matter that normally results from land clearing or land development operations for a construction project, including such debris from construction of structures at a site remote from the construction or demolition project site. Mixing of construction and demolition debris with other types of

[1] In July 1, 1985, final cover was generally defined as a 24-inch thick soil layer placed over the wastes in the landfill.
[2] An additional explanation of how C&D debris wastes are defined is contained in Section 4.3.2 of this document.

> solid waste will cause the resulting mixture to be classified as other than construction and demolition debris. The term also includes:
> (a) Clean cardboard, paper, plastic, wood, and metal scraps from a construction project;
> (b) Yard trash and unpainted, nontreated wood scraps and wood pallets from sources other than construction or demolition projects;
> (c) Scrap from manufacturing facilities which is the type of material generally used in construction projects and which would meet the definition of construction and demolition debris if it were generated as part of a construction or demolition project. This includes debris from the construction of manufactured homes and scrap shingles, wallboard, siding concrete, and similar materials from industrial or commercial facilities; and
> (d) De minimis amounts of other nonhazardous wastes that are generated at construction or destruction projects, provided such amounts are consistent with best management practices of the industry.

Dumps, open dumps, and promiscuous dumps were defined in earlier rules by the Department. In 1974, dumps were defined in Rule 17-7.02(7), F.A.C. as:

> "Dump" is a land disposal site at which solid waste is disposed of in a manner which does not protect the environment and is exposed to the elements, vectors and scavengers.

In 1979, open dumps and promiscuous dumps were defined in Rules 17-7.02(33) and (36), F.A.C., respectively, as:

> "Open Dump" means a site for the disposal of solid waste which does not comply with the criteria of Chapter 17-7, F.A.C.; and
>
> "Promiscuous Dump" means an unauthorized site where indiscriminate deposits of solid waste are made.

3.0 GOAL

If plans are made to disturb an old landfill, the owner is required to notify the Department before beginning this activity. The basic regulatory requirements for the old, closed landfills are contained in Rule 62-701.610(1), F.A.C. and read as follows:

> Use of closed landfill areas. Closed landfill areas, if disturbed, are a potential hazard to public health, ground water and the environment. The Department retains regulatory control over any activities which may affect the integrity of the environmental protection measures such as the landfill cover, drainage, liners, monitoring system, or leachate and stormwater controls.

> Consultation with the Department is required prior to conducting activities at the closed landfill areas.

The goal of this document is not to impose new regulatory burdens on owners of old landfills or disposal sites but to clarify what the Department's expectations are if an old site is disturbed or used. The owners of these sites are strongly encouraged to consult with the Department prior to disturbing any of these areas or conducting any construction near or over them and to develop a plan of action that achieves the goals of the owner but is also protective of human health and the environment. To facilitate communication with the Department in these matters, a list of contacts and addresses for the Tallahassee and District offices is provided in APPENDIX A.

The remaining portions of this document describe the activities that should be conducted or considered when attempting development near or over these old sites. The Department encourages the owners of these sites to follow these recommendations.

4.0 WASTE DISTURBANCE

4.1 Waste Relocation On-site

There have been occasions when construction projects have included the on-site relocation of existing wastes (i.e., within the footprint of the original landfill disposal area) which were either known to exist at the site before construction or discovered during construction. The owner may also desire to sort uncontaminated concrete from the waste before reburial[3].

In 2001, the Department revised its solid waste rule to address the relocation of these on-site wastes at closed landfills. Specifically, Rule 62-701.610(2), F.A.C., reads:

> Relocation of waste. The owner of a closed landfill may request permission from the Department to move waste from one point to another within the footprint of the same solid waste disposal unit. If the landfill has a valid closure permit, the permittee shall seek a modification to reflect the relocation of waste. The Department shall approve such a request upon a demonstration that:
>
> (a) The activity will not cause or contribute to any leachate leakage from the landfill, and will not adversely affect the closure design of the landfill;
>
> (b) Any leachate, stormwater runoff, or gas which is generated by the activity is controlled on site;
>
> (c) Any hazardous waste which is generated by the activity will be managed in accordance with Chapter 62-730, F.A.C.;

[3] Sorting materials other than uncontaminated concrete will require written approval by the Department before the sorting begins in accordance with the requirements of Section 4.4 of this document.

(d) Immediately after the activity is completed, the landfill will be covered, vegetated, and graded so as to comply with the closure requirements that apply to that landfill, which shall include a final cover of at least two feet of soil; and

(e) The appropriate District Office of the Department is notified at least seven days before the activity takes place in order to have the opportunity to inspect the site.

If the landfill has a valid closure permit, then a modification of that closure permit will be required to relocate on-site wastes. The owner of the landfill will have to demonstrate that the requirements of Rule 62-701.610(2), F.A.C. will be satisfied during the relocation activities. Uncontaminated concrete which is excavated from the disposal site and removed from the wastes may be used as a raw material or as fill material without a permit[4], i.e. used as clean debris. But it must meet the definition of clean debris contained in Rule 62-701.200(15), F.A.C. before it can be used as fill or raw material.

If the landfill was closed before closure permits were required, then waste relocation activities may still be allowed and the Department will not require a closure permit or long-term care requirements provided the following occur.

(a) A Relocation Plan must be submitted for review and approval to the Department's District office in the District where the disposal site is located (see contacts and addresses in APPENDIX A). At a minimum, it should include the following:

- a site map showing which waste will be removed and where it will be reburied;
- an estimate of the total volume of wastes to be relocated and the time needed to complete the project;
- a description of how the wastes will be excavated and relocated; and
- a description of how odors will be minimized and how surface water and leachate resulting from the relocation activities will be controlled.

(b) The waste must only be relocated within the original landfill or disposal site footprint[5], and must be covered with two feet of soil, compacted and revegetated.

(c) No off-site waste can be transported to the site and disposed of in the relocation areas.

(d) Should any hazardous wastes be encountered, they will be managed as a hazardous waste according to Chapter 62-730, F.A.C.

[4] For the Department's requirements on this use, see Rules 62-701.220(2)(f) and 62-701.730(15), F.A.C.

[5] Relocation of wastes outside the original footprint is considered new disposal and may require a permit.

(e) The only wastes to be relocated are those which are necessary to implement the construction project.

(f) If sorting of uncontaminated concrete from the waste is planned, a description of how the sorting will be accomplished shall be provided. Uncontaminated concrete may be used as a raw material or as fill without a permit provided it meets the requirements stated above for facilities having valid closure permits.

(g) If it is determined that the waste at the site is causing ground water contamination, then some water quality monitoring, and possibly corrective actions, will be required as described in Section 4.6.

4.2 Waste Left In-place

Waste left in-place and not disturbed, is generally subject only to the closure requirements that applied at the time the site was operated. If there are questions about these requirements, the summaries in APPENDICES B and C may provide some guidance.

Normally, no further action is required by the Department in the areas containing undisturbed waste. However, if the waste is not stabilized[6] and the final cover is inadequate, the Department may require the soil cover be repaired (for example, at least two feet of soil cover and no areas of ponding). Also, if it is determined that the waste is causing ground water contamination, then some water quality monitoring, and possibly corrective action, will be required according to Section 4.6.

4.3 Waste Removal and Off-site Disposal

Removing the waste may be the best option to achieve unrestricted use of former disposal areas. This option may not be practical if a large area of land was used for disposal or if much of the waste was disposed of in the ground water and cannot be easily removed. In those cases, a partial removal may be appropriate. The Department must be notified prior to beginning these activities. However, a permit will not generally be required for these activities provided the work is conducted under a Department approved Excavation and Disposal Plan (see Section 4.3.1).

Uncontaminated concrete which is excavated from the disposal site and removed from the wastes may be used as a raw material or as fill material without a permit[7], i.e. used as clean debris. But it must meet the definition of clean debris contained in Rule 62-701.200(15), F.A.C. before it can be used as fill or raw material.

[6] Rule 62-701.200(120), F.A.C. defines stabilized to mean the "biological and chemical decomposition of the wastes has ceased or diminished to a level so that such decomposition no longer poses a pollution, health, or safety hazard."

[7] For the Department's requirements on this use, see Rules 62-701.220(2)(f) and 62-701.730(15), F.A.C.

4.3.1 Excavation and Disposal Plan

Before beginning waste removal, an Excavation and Disposal Plan (EDP) must be submitted for review and approval to the Department's District office in the District where the disposal site is located. An EDP should include at least the following items.

(a) Extent of Waste - The extent of the disposal area where the waste will be removed must be fully delineated as follows:

- The extent of the in-place waste disposal area must be fully delineated in both the vertical and horizontal directions. Normally this delineation can be conducted using soil borings or test pits. Other geophysical methods may also be used.
- A site plan showing the location of the disposal area and locations of the test pits or soil borings must be provided.
- A description of the materials found in the test pits or borings and the depths where these materials were encountered must also be provided.
- If ground water was encountered in the pits or borings, the depth to water should be described.

(b) Gas Concerns - To ensure there are no potential adverse effects from waste gas, a combustible gas[8] survey of ambient air conditions must be conducted at the site before the wastes are removed and again within ninety days after removal. Combustible gases in confined spaces must not exceed twenty-five percent of the lower explosive limit of methane. Ambient air monitoring must also be conducted periodically during excavation to ensure conditions for combustible gases are not being created. In addition, before wastes are removed, soil monitoring probes must be installed where the wastes are located and sampled for combustible gases. Sampling must be conducted in the headspace of the monitoring probe without purging the gas before collecting the sample.

(c) Waste Removal – The EDP should describe the waste removal activities planned including a description of:

- the procedures for staging wastes prior to removal and an estimate of the length of time wastes will be staged;
- an estimate of the total volume of wastes to be removed and the time needed to complete the project;
- the methods(s) that will be used to characterize the various types of waste encountered according to the recommendations of Section 4.3.2;
- the procedures for handling any hazardous waste or hazardous materials should they be encountered;
- the procedures for handling any land clearing debris should it be generated and designated for off-site disposal or recycling;

[8] Combustible gas meters shall be calibrated to methane.

- the intended permitted disposal facility(s) for wastes removed;
- how odors and dust will be minimized and the procedures for controlling leachate from disturbed or staged waste areas prior to removal of the wastes from the site;
- if sorting of uncontaminated concrete from the waste is planned, a description of how the sorting will be accomplished shall be provided; and
- the procedures that will be used to ensure the water quality monitoring, and possibly corrective action, requirements of Section 4.6 will be followed.

4.3.2 Waste Characterizations

Before excavated waste can be disposed of off-site, it will need to be characterized to determine which method of disposal is appropriate. The waste can usually be placed into one of four categories:

(1) a hazardous waste;
(2) a waste suitable for disposal in a permitted Class I landfill;
(3) a waste suitable for disposal in a permitted Class III landfill; and
(4) C&D debris waste (if it meets the definition of C&D debris waste as described below).

In addition, some sites may involve a significant amount of land clearing operations prior to excavation of the waste. The vegetative waste generated from these land clearing operations may be suitable for disposal in a permitted Class III landfill, C&D debris facility, or a land clearing debris disposal facility.

If the excavated waste is a hazardous waste, it will need to be managed in accordance with the requirements of Chapter 62-730, F.A.C. The generator is responsible for determining if the excavated material is a hazardous waste. The Department's Hazardous Waste Regulation Section can be contacted if there are any questions about the hazardous waste determination for this material at 850/245-8790.

If the excavated material is not a hazardous waste and if it is not considered a liquid waste according to Rule 62-701.200(65), F.A.C., then it may be disposed of in a permitted Class I landfill[9]. The landfill owner/operator, however, is not required to accept this material for disposal. The generator of the waste should contact the landfill owner/operator before transporting the material to ensure it can be received at the landfill for disposal.

Some wastes may qualify for disposal in a permitted Class III landfill, provided they are not putrescible household wastes or other Class I wastes, and meet the definition of Rule 62-701.200(14), F.A.C. which reads as follows:

> "Class III waste" means yard trash, construction and demolition debris, processed tires, asbestos, carpet, cardboard, paper, glass,

[9] While not typically expected to be an option, the wastes could also be disposed of at a Waste-to-Energy (WTE) facility if the WTE facility is authorized by its permit to process it and the material is not a hazardous waste.

> plastic, furniture other than appliances, or other materials approved by the Department that are not expected to produce leachate which poses a threat to public health or the environment.

Some of the wastes removed from old disposal sites may meet the definitions of the specific items listed in the rule and may be suitable for disposal in a Class III landfill if they are not contaminated with other wastes. However, the definition of Class III wastes also allows the Department to approve "other materials" for disposal in Class III landfills if the wastes are "not expected to produce leachate which poses a threat to public health or the environment." Many of the wastes from these old disposal sites may qualify for this "other materials" category at a Class III landfill[10]. But the burden will be on the generator to show entitlement to this determination by the Department. These determinations will be made on a case-by-case basis.

Some waste may be considered C&D debris and qualify for disposal in a C&D debris disposal facility or a Class III landfill, however, this determination may be difficult. There are essentially three tests that must be satisfied. The first two deal with the definition of C&D debris contained in Section 403.703(6), F.S., and the third deals with the problem of mixing. First, the material must be "not water-soluble and nonhazardous in nature" including a list of included materials[11]. In other words, it must be of a certain "type." Second, the material must be "from the construction or destruction of a structure as part of a construction or demolition project," meaning that it must also be from a certain "source." Third, the law says that mixing of C&D debris with other types of waste will cause it to be classified as other than C&D debris.

Thus, for wastes from an old disposal site to be classified as C&D debris, the generator will have the burden to demonstrate that the waste met the "type" and "source" requirements and also show that it had never been mixed with other types of solid waste. If these three criteria cannot be satisfied, then the waste may not be disposed of at a C&D debris facility. However, it may still be allowed for disposal at a Class III landfill if the Department approves it as an "other material" according to Rule 62-701.200(14), F.A.C. Otherwise, it will have to be disposed of at a Class I landfill.

Vegetative waste that meets the definition of "yard trash" contained in Rule 62-701.200(135), F.A.C., may not be disposed of in a Class I landfill (see Section 403.708(12)(c), F.S.). However, it may be disposed of in a permitted Class III landfill. Yard trash may also be disposed of in a permitted C&D debris disposal facility, while land clearing debris may be disposed of in a permitted land clearing debris disposal facility. The definition of yard trash reads as follows:

[10] More information can be found in policy memorandum SWM-04.39 which is available at the following web site address:
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/solid_waste/policymemos/SWM-04-39.pdf

[11] These included materials are generally items such as: (1) steel, glass, brick, concrete, asphalt material, pipe, gypsum wallboard and lumber; (2) rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or land development operations for a construction project; and (3) clean cardboard, paper, plastic, wood, and metal scraps from a construction project.

> "Yard trash" means vegetative matter resulting from landscaping maintenance or land clearing operations and includes materials such as tree and shrub trimmings, grass clippings, palm fronds, trees and tree stumps.

The definition of land clearing debris reads as follows:

> "Land clearing debris" means rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or land development operations for a construction project. Land clearing debris does not include vegetative matter from lawn maintenance, commercial or residential landscape maintenance, right-of-way or easement maintenance, farming operations, nursery operations, or any other sources not related directly to a construction project.

4.4 Recycling Wastes or Vegetative Matter

In some cases, the owner of a site may wish to recycle some of the excavated waste or the vegetative matter generated during land clearing operations. This recycling might be on-site or the wastes may be sorted from non-recyclable wastes and transported off-site for recycling. If the only waste to be sorted and recycled is uncontaminated concrete, then, as stated earlier, this waste may be used as a raw material or as fill material without a permit[12], i.e. used as clean debris. But it must meet the definition of clean debris contained in Rule 62-701.200(15), F.A.C. before it can be used as fill or raw material. If other wastes are planned for sorting or recycling, then the requirements become more complicated.

If the waste is excavated and transported off-site for recycling, then it may be suitable for processing at a Waste Processing Facility[13] (WPF). Likewise, the vegetative materials generated during the operation and transported off-site may be suitable for recycling at a yard trash processing facility.

If the excavated wastes are sorted on-site for the purpose of recycling them either on-site or at a permitted or registered facility located off-site, then the owner of the landfill will be required to obtain written approval by the Department before beginning the sorting operations. The owner must contact the Department's District office in which the landfill is located to determine the exact requirements.

A WPF that recycles the waste must have a solid waste permit to operate according to the requirements of Rule 62-701.710, F.A.C. No excavated waste should be transported to a WPF unless the facility is authorized by permit to receive this

[12] For the Department's requirements on this use, see Rules 62-701.220(2)(f) and 62-701.730(15), F.A.C.
[13] The requirements for Waste Processing Facilities are contained in Rule 62-701.710, F.A.C.

material and the owner or operator of the WPF is willing to process it. The characterization of the waste in Section 4.3.2 of this document should help clarify if the waste can be processed by the WPF.

Yard trash[14] from the site may be recycled at yard trash processing facilities. These facilities will not normally need a solid waste permit provided they meet the criteria for a yard trash processing facility in Rule 62-709.330, F.A.C. and register with the Department in accordance with Rule 62-709.320(3), F.A.C.

The excavation, on-site sorting or recycling, transportation and off-site recycling of wastes or vegetative materials may be allowed, with prior written approval by the Department, provided the following occur.

(a) A Recycling Plan must be submitted for review and approval to the Department's District office in the District where the disposal site is located. It should include the following:

- a site map showing where the waste staging, sorting and screening areas will be located and which areas of the disposal site will be excavated;
- an estimate of the total volume of wastes to be sorted or recycled and the time needed to complete the project;
- a description of how the excavation will occur;
- a description of how the recyclable wastes will be sorted from the excavated wastes including operation of the staging areas;
- a description of how the screened waste will be managed in accordance with the recommendations of Section 4.5;
- a description of how odors will be minimized and how surface water and leachate resulting from the excavation, staging, sorting and screening activities will be controlled;
- a description of how dust from the recycling operation will be controlled[15];
- a description of the permitted facilities where the recyclable wastes shall be transported to and processed; and
- a description of how the excavated areas will be back-filled, covered, compacted and revegetated.

(b) Should any hazardous wastes be encountered, they must be managed as a hazardous waste according to Chapter 62-730, F.A.C.

(c) If it is determined that the waste at the site is causing ground water contamination, then some water quality monitoring, and possibly corrective actions, will be required according to Section 4.6.

[14] Yard trash is defined in Section 4.3.2 of this document.

[15] The owner should also be aware that the Department may regulate this dust as a fugitive particulate emission. The Department's Air Section, in the District where the landfill is located, can be contacted for further details.

4.5 Use of Screened Solid Waste

Screened solid waste (SSW) refers to the fines fraction of material that is produced by screening excavated wastes. This would normally occur during the on-site recycling operations. If the wastes that are screened meet the criteria for being C&D debris wastes in Section 4.3.2, then the fines fraction generated by this screening shall be considered Recovered Screen Material (RSM) and should be managed in accordance with the Department's RSM guidance[16] dated September 28, 1998 (DEP, 1998). Screened material from any other wastes shall be designated as SSW rather than RSM. For the purposes of this document, most of the screened material from recycling wastes at old disposal sites will be treated as SSW rather than RSM[17].

In order to use any SSW, the owner will have to provide reasonable assurances to the Department that the proposed use is protective of human health and that applicable Department standards and criteria will not be violated. The main goals that must be accomplished for owners to use the SSW are summarized as follows:

(a) The SSW must be managed and used so that it will not cause violations of applicable Department air, ground water, or surface water standards or criteria.

(b) The use of the SSW must not pose a significant threat to human health, which, for the purposes of this document, means an incremental risk of no greater than $1x10^{-6}$ for carcinogens and a health hazard index (hazard quotient) of no greater than one (1.0) for non-carcinogens[18].

(c) The use of the SSW must not create a public nuisance.

In some cases, it will be easy to provide a satisfactory demonstration that the proposed use of the SSW will be safe. In other cases, chemical testing may be required and evaluations of the proposed uses may be more difficult. The following discussion attempts to clarify some of these issues for use in back-filling excavated areas and in off-site applications.

4.5.1 Back-filling Excavated Areas

Back-filling on-site excavated areas can be placed into two categories. The first, and easiest to address, occurs when the SSW is placed in the excavated areas of the original waste disposal footprint (above the water table), compacted, covered with two

[16] This guidance can be found at the following web site address: http://www.dep.state.fl.us/waste/quick_topics/publications/shw/solid_waste/RSMFINALTotal.pdf. In addition, memorandum SWM-21.38 has some information on arsenic sampling. It is found at: http://www.dep.state.fl.us/waste/quick_topics/publications/shw/solid_waste/policymemos/SWM-21-38.pdf.

[17] The Department assumes that it will be difficult to classify old waste as C&D debris according to the three tests in Section 4.3.2. Therefore, the screened material from these wastes should be treated as SSW rather than RSM.

[18] For additional information, see Chapter 62-777, F.A.C.

feet of clean fill[19] and re-vegetated. In this case, the Department considers the likelihood of direct human exposure with the SSW to be negligible. Also, since the SSW is placed within the boundaries of the original waste disposal footprint, the leachability concerns are probably similar to the waste before it was disturbed. Therefore, no further action will be required if this method of backfilling is used unless it is determined that the residual waste at the site is causing ground water contamination. Then some water quality monitoring, and possibly corrective actions, will be required according to Section 4.6.

The second category of backfilling occurs when SSW is placed on the ground surface or mixed within the top 24 inches of soil at the site (above the water table). In these cases, the owner needs to ensure that all the goals of Section 4.5 are achieved. When showing the risks from these uses will not exceed the human health risk goals of Section 4.5, Item (b), the owner may choose to conduct a separate human health risk assessment (HRA) to determine the potential risks from the proposed uses of SSW. The owner may also elect to use the Department's soil cleanup target levels (SCTLs) contained in Table II of Chapter 62-777, F.A.C. as a guide for evaluating the potential risks. To use the Department's SCTLs, the following testing will be required.

(a) Representative discrete and composite samples shall be collected of the SSW as it will be used at the minimum frequency indicated in TABLE 1. Sampling and analysis must meet the requirements of Chapter 62-160, F.A.C. and the Department’s Standard Operating Procedures.

(b) Total analysis shall be conducted on the composite samples for the eight Resource Conservation and Recovery Act (RCRA) metals[20] using the approved EPA Methods and for semi-volatile organic compounds using EPA Method 8270C, and pesticides using EPA Method 8081A.

(c) Total analysis shall be conducted on the discrete samples for volatile organic compounds using EPA Method 8260B.

(d) The leaching potential for detected parameters in the total analyses of the samples can be estimated by comparing the total concentrations of those parameters to the Department's corresponding SCTL leachability values. To further evaluate leaching potential, the samples can also be prepared using the Synthetic Precipitation Leaching Procedure (SPLP), EPA Method 1312. The extracts prepared from this procedure can then be analyzed[21], using the approved EPA methods with the results compared to the Department's ground water standards and criteria.

[19] For the purposes of this document, "clean fill" means soil which has not become contaminated by human activity or soil which meets the "cleaned soil" criteria of Chapter 62-713, F.A.C. Soil may include other similar materials if approved by the Department.

[20] These metals are: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

[21] When analyzing for parameters such as sulfates and TDS, it is likely that de-ionized water will need to be used as the extraction fluid in the SPLP test rather than the extraction fluid specified in the method itself.

(e) Laboratories conducting the analyses must be certified by an accrediting authority recognized by the National Environmental Laboratory Accreditation Program (NELAP) and must submit their results in an acceptable electronic format. Analysis of the SPLP extracts must be conducted using detection limits at or below the Department's ground water standards and criteria.

Based on the results of the above testing, possible uses for SSW can then be considered. SSW may be used as backfill on-site above the water table without further restrictions provided: (1) the total concentrations of detected chemicals are below the Department's corresponding residential direct exposure SCTLs; and (2) the detected chemicals are not expected to be a leaching concern. However, filling jurisdictional surface waters or wetlands is not allowed unless a permit specifically authorizing this use of the SSW is issued by the Department. If these conditions cannot be met, then the Department should be contacted about appropriate uses for the SSW.

4.5.2 Off-site Uses

SSW must not be used as fill material in jurisdictional surface waters or wetland unless a permit specifically authorizing this use has been issued by the Department. SSW may be suitable for use as initial and intermediate cover at permitted Class I, II or III landfills provided it meets the criteria of Rules 62-701.200(59) and (61), F.A.C. These uses of SSW may require approval by the Department's District office in the District where the disposal site is located as part of its landfill permit.

Other potential uses of SSW will depend on the chemical nature of the material. Testing similar to that contained in Section 4.5.1, Items (a) through (e) must be conducted to evaluate total and leachable concentrations of chemicals in the SSW. The Department must be consulted before using any SSW off-site from the disposal area.

4.6 Water Quality Evaluations

When wastes are removed or left in-place, water quality monitoring will generally be needed to ensure there are no adverse affects to ground water from the wastes. The actual requirements for water quality evaluations will vary depending upon the site-specific circumstances.

4.6.1 Wastes Removed

If all the wastes are removed from the site, then limited water quality sampling (usually one to three sampling events) will usually be required in the area where the wastes were previously disposed to determine if there are any violations of the Department's water quality standards or criteria. The Department recommends preparing a Preliminary Contamination Assessment Plan (PCAP) and getting it approved by the Department. After conducting the activities in the PCAP, then a Preliminary Contamination Assessment Report (PCAR) must be prepared for review by

the Department. If the PCAR demonstrates that no water quality violations are occurring, then no further testing will be required. A description of the tasks required for developing PCAPs and PCARs is included in APPENDIX D.

If the PCAR demonstrates that water quality violations are occurring at the site, then further work will be required. Depending on the level of the contamination and the nature of the site, the Department may allow the owner to initiate a Monitoring Only Plan (MOP) and simply monitor the level of ground water contamination. As an alternative, the Department may require the owner to conduct additional assessment to evaluate the extent of the contamination and based on the results of that additional assessment then implement some form of remedial action. The remedial action may be simply to continue monitoring the site for some period of time, or it may require some ground water control and treatment. The actual requirements are determined on a case-by-case basis. When it is determined that additional assessment is needed, the process described in Chapter 62-780, F.A.C. should be followed.

4.6.2 Wastes Left In-place

If the wastes are left in place or only partially removed, then monitoring of the water quality at the site for some period of time will be required. The Department may allow monitoring wells to be installed according to the PCAP and PCAR requirements described in Section 4.6.1 and then require these wells be sampled for a period of time. As an alternative, the Department may require a Ground Water Monitoring Plan (GWMP) according to the requirements of Rule 62-520.600, F.A.C. and have the wells installed under this plan monitored for a period of time. In either case, the owner must contact the Department to determine which approach will be required. The duration of the monitoring will depend on the site-specific conditions and the results of the water quality testing. If it is determined by the Department that water quality violations are not occurring at the site, then no further water quality evaluations will be required.

If sampling results from the PCAP or the GWMP show there are violations of the Department's water quality standards or criteria, then further work will be required. The owner must follow the additional assessment procedures described in Section 4.6.1 to evaluate the extent of the contamination. Based on the results of the additional assessment, the owner will then be required to implement some form of remedial action. This may be simply to continue monitoring the site for some period of time, or it may require some ground water control and treatment. The actual requirements are determined on a case-by-case basis.

5.0 CONSTRUCTION NEAR WASTE-FILLED AREAS

There have been occasions where construction projects were conducted near old disposal sites without actually disturbing the wastes. The Department encourages caution be used when planning and implementing these projects since their proximity to old disposal areas may result in unacceptable risks to human health and the

environment. At a minimum, the Department encourages implementation of the following recommendations:

(a) a combustible gas[22] survey of ambient air conditions should be conducted periodically at the project site to ensure combustible gases from the disposal area are not exceeding twenty-five percent of their lower explosive limit in structures;

(b) soil monitoring probes should be installed between the proposed construction and the waste-filled areas to ensure combustible gases exceeding their lower explosive limit are not moving from the disposal area;

(c) any structures located near the disposal areas which could be impacted by combustible gas should be designed with good ventilation and with explosion proof electrical wiring;

(d) access to the disposal site should be restricted; and

(e) shallow potable water wells and irrigation wells should not be installed within 500 feet of the waste-filled areas unless it is confirmed there are no adverse affects to ground water from the wastes in the disposal area.

6.0 CONSTRUCTION OVER WASTE-FILLED AREAS

The appropriate District office must be consulted before any construction activity is conducted over an old disposal site. The goals of this consultation are to ensure that the integrity of the environmental protection measures of the disposal area is not adversely impacted and to protect the health and safety of individuals who may be using the disposal area.

6.1 Cautions For Construction

When considering construction projects over old disposal sites, the Department recommends the following guidelines be used.

(a) The Department strongly discourages the construction of residential structures over old waste-filled areas. Instances of landfill gas seeping into the structures and structural settlement problems are well documented difficulties with this use of old disposal sites.

(b) Any construction projects should consider potential impacts from combustible gas. Inside structures, combustible gases must not exceed twenty-five percent of the lower explosive limit for methane. Any structures located on disposal areas must be designed with good ventilation and with explosion proof electrical wiring. Enclosed ground level and underground structures should be avoided

[22] Combustible gas meters shall be calibrated to methane.

unless designed with adequate protection against landfill gas intrusion and accumulation.

(c) If the construction project may cause combustible gas to migrate off-site, then gas monitoring on a quarterly basis will be required in soil monitoring probes according to Rule 62-701.530(2), F.A.C., i.e., along the property boundary.

(d) If any waste is disturbed because of the construction project, then the guidelines in Section 4.0 should be followed, as appropriate.

(e) When planning the construction, concentrated weight loading should be avoided, if possible, to prevent uneven settlement of the underlying wastes. Also, disturbance of the landfill cover or barriers should be minimized or avoided when structures are built, particularly if pilings are used. Any disturbance of the cover or barrier must be repaired.

(f) Irrigation systems, if installed, must be designed to minimize disturbance to the underlying waste-filled areas and must not withdraw water from areas where ground water may be contaminated.

(g) Surface water management systems must not be located over contaminated areas or over waste-filled areas unless they are lined. Also, an Environmental Resource Permit from the Department will be required prior to constructing a surface water system.

(h) The disposal site must be maintained. For example, areas that have settled must be filled with clean fill to minimize leachate generation due to rainfall and irrigation and to protect individuals who may walk or play on the site.

(i) The landfill cover must be maintained to prevent human contact with the underlying waste materials.

(j) Care must be taken during any waste relocation, construction or recreational activities to prevent damage to ground water monitoring and gas monitoring systems.

(k) Underground utilities and similar installations that are placed within 200 feet of, or across, any side of the filled areas should be avoided. If they cannot be avoided and if combustible gases are being generated, then a properly located gas barrier or ventilation system must be placed at each waste boundary which is crossed by the utility line to prevent the landfill gas from migrating along the utility line to off-site structures.

6.2 Alternate Uses of Disposal Areas

Some creative alternate uses of closed landfills and old disposal areas have been implemented in recent years. One very successful use is the creation of recreational facilities. Facilities such as ball parks, soccer fields, hiking trails, golf courses and golf driving ranges appear to be acceptable and successful land uses for these old sites. The Department prefers these types of uses be selected for an old site rather than the construction of structures such as residential housing or educational facilities.

Before beginning one of these projects, the owner must develop construction plans and a detailed description of the project and present these for review to the Department's District office where the project is located. A list of contacts and addresses for these offices in provided in APPENDIX A.

In most cases, a permit will not be required, except for an Environmental Resource Permit addressing the surface water control system. The construction plans must show the major features of the project including locations of: waste disposal areas, on-site structures, the surface water management system, irrigation systems and planned utility lines. The description of the project must include how the recommendations for waste disturbance in Section 4.0 will be addressed. It must also address the recommendations of Sections 5.0 and 6.1.

REFERENCES

DEP (Florida Department of Environmental Protection), 1998, Guidelines For The Management Of Recovered Screen Material From C&D Debris Recycling Facilities in Florida, Department of Environmental Protection, Solid Waste Section, Tallahassee, Florida, September 28.

Table 1. Minimum Number of Soil Samples Required

Amount of Soil by Volume, yd^3	Amount of Soil by Weight, tons	Number of Discrete Samples Required for Volatile Organics	Number of Composite Samples Required for non-Volatile Organics
<100	<140	1	1
100 to <500	140 to <700	3	3
500 to <1000	700 to <1400	5	5
For each additional 500 yd^3	For each additional 700 tons	1	1

APPENDIX A

Department Solid Waste Contacts and Addresses

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOLID WASTE CONTACTS
(updated 08/18/2015)

Northwest District:	Dawn Templin, Professional Engineer Department of Environmental Protection 160 Governmental Center, Suite 308 Pensacola, Florida 32502-5794 850/595-0644 Dawn.Templin@dep.state.fl.us
Northeast District:	Rick Rachal, Program Administrator Department of Environmental Protection 8800 Baymeadows Way West Jacksonville, Florida 32256-7590 904/256-1543 Richard.Rachal@dep.state.fl.us
Central District:	Tom Lubozynski, Environmental Administrator Department of Environmental Protection 3319 Maguire Blvd., Suite 232 Orlando, Florida 32803-3767 407/897-4300 Tom.Lubozynski@dep.state.fl.us
Southwest District:	Steve Morgan, Permitting Manager Department of Environmental Protection 13051 N. Telecom Parkway Temple Terrace, Florida 33637-0926 813/470-5754 Steve.Morgan@dep.state.fl.us
Southeast District:	Amede Dimonnay, Environmental Specialist Department of Environmental Protection 3301 Gun Club Road / MSC7210-1 West Palm Beach, Florida 33406 561/681-6672 Amede.Dimonnay@dep.state.fl.us
South District:	Jennifer Carpenter, Assistant Director Department of Environmental Protection 2295 Victoria Avenue, Suite 364 Fort Myers, Florida 33901-3881 239/344-5676 Jennifer.Carpenter@dep.state.fl.us
Tallahassee:	Richard Tedder, Environmental Administrator Department of Environmental Protection 2600 Blair Stone Road, MS# 4565 Tallahassee, Florida 32399-2400 850/245-8735 Richard.Tedder@dep.state.fl.us

APPENDIX B

Partial Summary of Landfill Permit, Closure and Long-term Care Requirements

PARTIAL SUMMARY OF LANDFILL PERMIT, CLOSURE AND LONG-TERM CARE REQUIREMENTS

(June 30, 2000)

AGENCY "CHAPTER TITLE"	GENERAL DESCRIPTION OF REQUIREMENTS
Dept. of Health and Rehabilitative Services Chapter 10D-12, "Garbage and Rubbish" October 20, 1964	Permit: • None, but an operational work plan approval by the Division of Health was required before receiving waste. Ground Water Monitoring: • None. Closure Design: • Final cover depth of 24 inches of compacted earth. • 2:1 slopes were allowed. Long-term Care: • Maintenance program required to assure prompt repair of cracks, depressions and erosion of the surface and side slopes until the site stabilized.
Dept. of Pollution Control Chapter 17-7, "Resource Recovery and Management Part I: Solid Waste Facilities" October 1, 1974	Landfill Permit: • Permit required after January 1, 1975 to operate, maintain, construct, expand or modify a landfill. • No permits required for closure. • Normal farming operations and persons who dispose of solid waste resulting from their own activities on their own property are specifically exempted from permitting provided no public nuisance or conditions adversely affecting public health is caused and provided the activity does not violate other rules, laws or ordinances. Ground Water Monitoring: • Not required, but the Department had the option to require it at the time of design approval or if ground water contamination was suspected. Landfill Closure Design: • Two feet of earth compacted in 6 inch layers with the top 6 inch layer loosely compacted to promote plant growth. • Side slopes for landfills ≥ five feet above grade to be covered with 3.5 feet of compacted earth cover. • Slopes no greater than 3:1 required (2:1 slopes no longer allowed). Dump Closure: • Dumps required to be eliminated or converted to "sanitary landfills" by July 1, 1977. • Dumps were closed by controlling access, taking steps to divert surface water around the site, removing wastes from the water table, and seeding or planting grass to minimize erosion. • No final cover requirement mentioned. Long-term Care: • None.

PARTIAL SUMMARY OF LANDFILL PERMIT, CLOSURE AND LONG-TERM CARE REQUIREMENTS

(June 30, 2000)

AGENCY "CHAPTER TITLE"	GENERAL DESCRIPTION OF REQUIREMENTS
Dept. of Environmental Regulation Chapter 17-7, ", "Resource Recovery and Management Part I: Solid Waste Facilities" May 25, 1979	Permit: • No landfill to be operated, maintained, constructed, expanded, or modified without a valid Department permit. • No permits required for closure. Ground Water Monitoring (by 9 months from eff. date, ~ 2/25/80): • Class I landfills required to have a minimum of three monitoring wells. Class II landfills are required to have at least one. • Wells required to be sampled at least every six months for various indicator parameters. Closure Design (for sanitary landfills and open dumps): • Two feet of earth compacted in 6 inch layers with the top 6 inch layer loosely compacted to promote plant growth, slopes no greater than 3 to 1. • Site access controlled. • Site seeded or planted with grass or suitable vegetation. Long-term Care: • Site to be maintained until stabilized by controlling erosion, maintaining grass cover, prevention of ponding, and prevention of deposited wastes from becoming a hazard or nuisance. • Landfill to be monitored, including collection and treatment of leachates, until the site is stabilized.
Dept. of Environmental Regulation Chapter 17-4 January 1, 1983 (aka: Ground Water Rule)	Ground Water Monitoring: • Landfills (domestic or industrial) which are "existing installations" required to submit a ground water monitoring plan by May 1983. • New landfills required to submit a ground water monitoring plan in conjunction with their permit applications.
Dept. of Environmental Regulation Chapter 17-7, ", "Resource Recovery and Management Part I: Solid Waste Facilities" July 1, 1985	Permit: • No landfill to be operated, maintained, constructed, expanded, modified or closed without a valid Department permit. • For the first time, permits were required for closure of Class I, II or III landfills and applied to all landfills receiving waste, portions of landfills not having final cover and all future landfills requiring solid waste permits (but see exceptions in next bullet). • Closure permit requirements did not apply to: (1) a person disposing of their own waste on their own property; (2) any disposal of C&D debris; and (3) a Class I, II or III landfill which had a modification of an operation permit to close or a closure plan approved by the Department by July 1, 1985. Ground Water Monitoring: • Monitoring to be in accordance with Rules 17-3.401, 17-4.245 and 17-4.246. Closure Design: • Barrier layer must be a geomembrane, soils or chemically/physically amended soils. Minimum final cover thickness must be two feet of soils or one foot of soils plus a geomembrane or soil admixture. Long-term Care: • 20 year long-term care period. • Landfill to be monitored and maintained after closure in accordance with approved closure plan. • Language on "use of closed landfill areas" added to rule. Consultation with the Department required before conducting activities at a closed landfill. • Language providing guidance for "construction on closed landfill" areas added to rule.

PARTIAL SUMMARY OF LANDFILL PERMIT, CLOSURE AND LONG-TERM CARE REQUIREMENTS

(June 30, 2000)

AGENCY "CHAPTER TITLE"	GENERAL DESCRIPTION OF REQUIREMENTS
Dept. of Environmental Regulation Chapter 17-701, "Solid Waste Management Facilities" July 19, 1990	Permit: • The on-site exemption from permitting by persons disposing of their own waste on their own property is modified. It applies only if: (1) the waste is from their residential property; or (2) is rocks, soils trees, tree remains and other vegetative matter which normally results from land clearing operations; or (3) the environmental effects of the disposal on ground water and surface water are addressed in a permit, site certification or ground water monitoring plan approved by the Department.
Dept. of Environmental Regulation Chapter 17-701, "Solid Waste Management Facilities" January 6, 1993	Ground Water Monitoring: • Downgradient well spacing no greater than 500 feet. Upgradient well spacing no greater than 1500 feet. • Specific leachate and surface water sampling added. • Monitoring parameters detailed including addition of EPA Method 601/602 parameters. • Added language for consistency with Federal Subtitle D requirements including detection wells and assessment monitoring with corrective action. Closure Design: • If a soil barrier layer is used, it must be 18 inches thick and covered by another 18 inches of soil. The soil barrier layer must have a minimum hydraulic conductivity of $1x10^{-5}$ cm/sec for Class III landfills or $1x10^{-7}$ cm/sec for Class I landfills. If a geomembrane is used, it must be covered by a 24-inch thick soil layer. Long-term Care: • 30 year long-term care period, per Subtitle D requirements. • Landfill to be monitored and maintained after closure in accordance with approved closure plan. • Language providing guidance for "construction on closed landfill" areas removed from the rule. Language on "use of closed landfill areas" remained in the rule.
Dept. of Environmental Regulation Chapter 17-701, "Solid Waste Management Facilities" January 2, 1994	Ground Water Monitoring: • Added requirements for APPENDIX I and II analyses in accordance with Subtitle D requirements. Closure Design: • Added language for consistency with Federal Subtitle D requirements. This included requiring a geomembrane in the cap if it was also used in the bottom liner system (bathtub effect), and allowed for alternate closure designs if the applicant could show a substantially equivalent rate of storm water infiltration with the alternate design.
Dept. of Environmental Protection Chapter 62-701, "Solid Waste Management Facilities" May 27, 2001	Current rule. No additional changes to closure requirements. Earlier, the chapter title was changed because of the DER/DNR merger to form DEP. The current rule also included the "rule reduction" exercise.

APPENDIX C

Partial Summary of Construction and Demolition (C&D) Debris Permit, Closure and Long-term Care Requirements

PARTIAL SUMMARY OF CONSTRUCTION AND DEMOLITION (C&D) DEBRIS FACILITY PERMIT, CLOSURE AND LONG-TERM CARE REQUIREMENTS

(June 30, 2000)

AGENCY "CHAPTER TITLE"	GENERAL DESCRIPTION OF REQUIREMENTS
Dept. of Environmental Regulation Chapter 17-7, ", "Resource Recovery and Management Part I: Solid Waste Facilities" May 25, 1979	Permit: • First time the definition of C&D Debris appears in the rule. • All C&D disposal sites are specifically exempted from permitting provided no public nuisance or conditions adversely affecting public health is caused and provided the activity does not violate other rules, laws or ordinances. Ground Water Monitoring: • None. Closure Design: • None. Long-term Care: • None.
Dept. of Environmental Regulation Chapter 17-701, "Solid Waste Management Facilities" August 2, 1989	Permit: • General permits now required for off-site disposal of C&D debris, but on-site disposal is still exempt from permitting. • New C&D facilities have to comply by the effective date of rule. • Existing C&D facilities have to comply within 90 days of the effective date or ~November 2, 1989. Ground Water Monitoring: • None. Closure Design (both on-site and off-site disposal areas): • Final cover with a 24-inch thick soil layer required with upper six inches capable of supporting vegetation and graded to eliminate ponding, promote drainage and minimize erosion. Long-term Care: • None.
Dept. of Environmental Protection Chapter 62-701, "Solid Waste Management Facilities" April 23, 1997	Permit: • Regular permits now required for construction or operation (but not for closure) of an off-site C&D disposal facility. • General permits still allowed for off-site disposal of land clearing debris. • On-site disposal is still exempt from permitting provided the site is properly closed. Ground Water Monitoring: • Limited ground water monitoring required for off-site C&D disposal facilities but not for land clearing debris sites. • C&D disposal facilities required to have ground water monitoring plans in place by July 1, 1998. Long-term Care: • C&D disposal facilities to be maintained and monitored (ground water) for five years from the date of closing.

APPENDIX D

Preliminary Contamination Assessment Actions

PRELIMINARY CONTAMINATION ASSESSMENT ACTIONS

1. The owner of the disposal facility, hereinafter referred to as the "Respondent", shall submit to the Department as part of any assessment report documents certification that the organization(s) and laboratory(s) performing the sampling and analysis have used procedures approved by the Department. All field sampling activities and field measurements shall follow the applicable procedures and requirements described in the most current version of DEP-SOP-001/01, per Rule 62-160.210, Florida Administrative Code (F.A.C.). Laboratories conducting analysis must be NELAP certified.

2. Within sixty (60) days of written authorization from the Department, Respondent shall submit a Preliminary Contamination Assessment Plan ("PCAP") to the Department. Applicable portions of the PCAP shall be signed and sealed by an appropriate professional. The PCAP shall describe the tasks that Respondent proposes to perform in order to determine whether the soil, sediment, surface water or ground water are contaminated at Respondent's facility; and, if so, whether such contamination has resulted in a violation of the water quality standards and minimum criteria established in Chapters 62-520 and 62-302, F.A.C. or constitutes a risk to the public health, the environment, or the public welfare. The PCAP shall include a time schedule for each task so that all tasks can be completed and a Preliminary Contamination Assessment Report ("PCAR") can be submitted to the Department within ninety (90) days of approval of the PCAP by the Department.

3. The PCAP shall include provisions for the installation and sampling of, in most cases, a minimum of four (4) monitor wells to determine the groundwater quality and flow direction at the site. Proposal of fewer wells or an alternate well configuration is subject to Department approval. Provision to sample surface waters, sediments and soils shall be included as necessary.

A. One of the wells shall be located in the area suspected of greatest contamination and two wells shall be located downgradient of the area suspected of highest contamination.

B. One of the wells shall be an unaffected background well.

C. The wells, surface waters, sediments and soils, as applicable, shall be sampled and analyzed for the following parameters with the listed method:

(1) priority pollutant metals using Department approved Methods;

(2) priority pollutant organic chemicals using EPA methods 624/8240 and 625/8250 or 8270;

(3) all non-priority pollutant organic chemicals with peaks greater than 10 micrograms per liter (ug/l) using EPA methods 624/8240 and 625/8250 or 8270;

(4) pesticides and herbicides using EPA methods 8080, 8140, 8150 or 625/8250 or 8270, if applicable, or other Department approved methods for pesticides and herbicides for which the listed methods are not applicable; and,

(5) others, as applicable.

The proposal of any alternate analytical methods is subject to approval by the Department. The number of contaminants to be analyzed may be reduced if Respondent can demonstrate to the Department's satisfaction that the contaminants proposed to be deleted from the list cannot be attributed to any activities that have taken place at Respondent's facility. The Department shall submit written notification to the Respondent if the number can be reduced.

4. The PCAP shall include provisions for investigation of the following conditions, as applicable, at the disposal site and the surrounding area:

A. the presence and thickness of any free product at the site;

B. the presence of soil contamination at the site;

C. the aquifers present beneath the site and their Chapter 62-502, F.A.C, groundwater classification;

D. the number and locations of all public and private potable supply wells within a 1/2 mile radius of the site;

E. the presence of surface waters of the State within a 1/2 mile radius of the site and, if applicable, their Rule 62-302, F.A.C., classification; and,

F. the geology and hydrogeology of the site focusing on aquifers and confining units which are present, the potential for movement of contaminants both horizontally and vertically, zones that are likely to be affected, and actual and potential uses of the groundwater as a resource.

5. The PCAP shall contain the following site specific information:

A. proposed well construction details including methods and materials, well installation depths and screened intervals and well development procedures;

B. a description of methods and equipment to be used to quantify soil and sediment contamination;

C. a description of water sampling methods;

D. name of laboratory to be used for analytical work;

E. the parameters to be analyzed for, the analytical methods to be used and the detection limits of these analytical methods;

F. site map depicting monitoring well locations and other proposed sampling sites and justification for their selection; and,

G. a detailed site history including: a description of past and present property and/or facility owners; a description of past and present operations; a summary of current and past environmental permits; and a summary of known spills or releases of materials which may be potential pollution sources.

6. The Department shall review the PCAP and provide Respondent with a written response to the proposal. In the event that additional information is necessary for the Department to evaluate the PCAP, the Department shall make a written request to Respondent for the information and Respondent shall provide the requested information within sixty (60) days from receipt of said request. The PCAP shall incorporate all required modifications to the PCAP identified by the Department. Any action taken by Respondent with regard to the implementation of the PCAP prior to the Respondent

receiving written notification from the Department that the PCAP has been approved shall be at Respondent's risk.

7. Within (90) days of the Department's approval of the PCAP (unless a written time extension is granted by the Department), Respondent shall submit a written Preliminary Contamination Assessment Report ("PCAR") to the Department. Applicable portions of the PCAR shall be signed and sealed by an appropriate professional. The PCAR shall:

A. summarize and analyze all "PCAP" tasks;

B. include, but not be limited to, the following tables and figures:

(1) a table with well construction details, top of casing elevation, depth to water measurements, and water elevations;

(2) a site map showing water elevations, water table contours and the groundwater flow direction for each aquifer monitored for each sampling period;

(3) a table with water quality information for all monitor wells;

(4) site maps showing contaminant concentrations and contours of the contaminants; and,

(5) cross sections depicting the geology of the site at least to the top of the confining unit. In general there should be at least one north to south cross section and one east to west cross section.

C. include copies of field notes pertaining to field procedures, particularly of data collection procedures;

D. specify results and conclusions regarding the objectives of the Preliminary Contamination Assessment;

E. identify, to the extent possible, the source(s), extent, and concentrations of contaminants, and the existence of any imminent hazards; and,

F. provide the following quality assurance data along with the analytical data from all media:

(1) dates of sample collection, sample preparation including extraction and sample analysis;

(2) the detection limits for these analyses;

(3) the results from the analyses of field quality control samples; including field equipments, trip blanks and duplicates;

(4) the results from reagent water blanks run on that day (5 percent of samples run, minimum);

(5) the spike and surrogate percent recoveries for the data set;

(6) the actual chromatograms, if requested by the Department;

(7) any other QA/QC information Department deems necessary to evaluate validity of the submitted data; and,

(8) a water quality data Electronic Data Deliverable (EDD) of the results in an electronic format consistent with requirements for running the data through Florida DEP Automated Data Processing Tool (ADaPT) and importing the data into the Department's databases.

8. The Department shall review the PCAR and determine whether it is adequate to meet the objectives of the PCAP. In the event that additional information is necessary

to evaluate the PCAR, the Department shall make a written request and Respondent shall provide all requested information within sixty (60) days of receipt of said request.

9. Respondent shall provide notification to the Department at least twenty (20) days prior to the installation or sampling of any monitoring wells, and shall allow Department personnel the opportunity to observe installation and sampling and to take split samples. All necessary approvals must be obtained from the appropriate Water Management District before any wells are installed. Raw data shall be exchanged between Respondent and the Department as soon as the data is available.

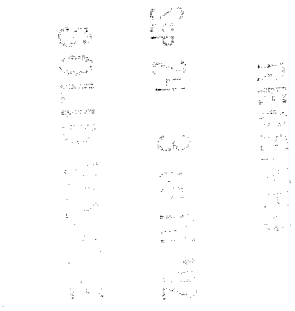
10. The Respondent is required to comply with all local, state and federal regulations and to obtain any necessary approvals from local, state and federal authorities in carrying out these assessment actions.

11. If the Department's review of the PCAR indicates that the site is not contaminated and does not constitute a risk to the public health or the environment the Department will so notify the Respondent in writing.

12. If the Department's review of the PCAR indicates that the soil, sediments, surface water or ground water is contaminated, or constitutes a risk to the public health, the environment, or the public welfare, the Respondent will be required to initiate risk based corrective actions as required by Chapter 62-780, F.A.C.

APPENDIX B
Waste Depth Information from Previous Reports

Results of Waste Exploration at the Former Good Homes Road Landfill Orange County, Florida



Ardaman & Associates, Inc.

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Fort Lauderdale, 3665 Park Central Boulevard North, Pompano Beach, Florida 33064, Phone (954) 969-8788
Fort Myers, 9970 Bavaria Road, Fort Myers, Florida 33913, Phone (941) 768-6600
Miami, 2608 W. 84th Street, Hialeah, Florida 33016, Phone (305) 825-2683
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MEMBERS:
A.S.F.E.
American Concrete Institute
American Society for Testing and Materials
Florida Institute of Consulting Engineers

Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

September 20, 2002
File Number 99-6690A

Orange County Utilities
Solid Waste Division
5901 Young Pine Road
Orlando, Florida 32829

Attention: Mr. D. Michael Rogers, P.G.
Mr. Dan Morrical, P.E.

Subject: Results of Waste Exploration at
the Former Good Homes Road Landfill
Orange County, Florida

Gentlemen:

As requested by Orange County Utilities Solid Waste Division, Ardaman & Associates has completed additional exploration relative to the extent of waste at the former Good Homes Road Landfill site. This report presents the results of the additional exploration as well as the results of all previous known explorations.

The locations of the borings performed by Ardaman during this exploration as well as previous borings for other projects completed on the site by Ardaman and S&ME are shown on Figure 1. For this project, a total of 54 auger borings have been performed to date throughout the former landfill site to explore the horizontal and vertical extents of solid waste. Five Standard Penetration Test (SPT) borings were also performed along the northern, western, eastern and southern sides of the landfill for exploration purposes and to aid in designing the proposed groundwater monitoring program.

The initial waste exploration for this project, consisting of 50 auger borings, was completed on September 20, 2001. Subsequent to the initial exploration, 12 hand auger borings were performed on November 29, 2001, at Orange County Utilities' request, to further explore the limits of waste along the southern and western property boundaries. In response to an April 25, 2002 waste exploration results review letter from FDEP, additional exploration, consisting of four auger borings to a depth of 20 feet bls, was performed along the western property boundary on May 10, 2002. A tabulation of the waste found in these four borings follows.

Boring No.	**Depth Waste Was Encountered** (Feet)	**Depth to Base of Waste** (Feet)	**Thickness of Waste** (Feet)
AB-51	2.5	6.5	4.0
AB-52	3.5	8.0	4.5
AB-53	Not Encountered	Not Encountered	0.0
AB-54	4.0	9.0	5.0

Borings AB-51, AB-52 and AB-54 encountered waste from 2.5 to 4 feet below the ground surface and extending to a depth of 6.5 to 9 feet. No waste was encountered in boring AB-53.

Table 1 presents the depth of boring, depth to top of waste, depth to bottom of waste, depth to groundwater and date drilled for all the borings shown on Figure 1.

Figures 2 and 3 present interpreted contours of the depths to the top and bottom of waste, respectively, based on the data presented in Table 1. These contours should be considered approximations. The contours were generated using Surfer® Version 7, 1999 software. Figure 4 is an isopach map with interpreted contours of the total thickness of waste based on the difference between the depths presented in Figures 2 and 3.

Waste was encountered in all areas of the site except the northwestern, southeastern and southwestern corners, the northern portion of the Transfer Station property along White Road and along the southern property line. Waste was encountered at the land surface in some of the central and southern portions of the site. The top of the waste was typically encountered less than 2 feet below the land surface during our exploration.

As shown on Figure 3, if waste was encountered, it ranged from approximately 2 to 23 feet deep. The areas with the greatest thickness of waste appear to be the Bantz, Rowe and Weeks property and the central and southern portions of the site. The waste on the Curtis Trust property appeared to range from little or no waste to as deep as 23 feet. The latest borings were performed as far west as possible adjacent to the fence for the neighboring subdivision, while avoiding utilities and obstacles. The borings were located within the 25-foot right of way at distances of approximately 10 to 19 feet west of the Curtis Trust and Weeks property lines. Based on the results, it appears that waste (trash) is either absent or present as intermittent, thin deposits within the right of way. The analyses submitted herein are based on the data obtained from the soil boring logs available. This report does not reflect any variations which may occur adjacent to, between or outside the borings.

Figures 5 through 9 present recent and historic aerial photographs of the subject site. The 1971, 1967 and 1958 aerials do not show waste landfilled outside of property boundaries. The landfill began collecting waste in the late 1950's to early 1960's and reportedly closed operation around 1973. Therefore, any waste being landfilled outside the property boundaries would likely be evident from the historic aerial photographs included. Note that Good Homes Road and White Road are both present in the earliest photograph from 1958. The 1987 aerial photograph shows grading on the Curtis Trust property and within the 25-foot right of way in conjunction with development of the adjoining Rose Hill subdivision to the west.

Based on the results of the waste exploration including the supplementary borings, we recommend that the proposed groundwater program monitoring wells/piezometers be installed in accordance with our September 10, 2001 design.

This report has been prepared for the exclusive use of Orange County in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

We appreciate the opportunity to provide our services to Orange County Utilities Solid Waste Division. If you have any questions regarding the waste exploration phase of the project, please contact us.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.

Kathryn B. Minter
Project Geologist

Patrick A. Kennedy, P.E. 09/23/2002
Senior Project Engineer
Florida Registration No. 48430

Charles H. Cunningham, P.E.
Division Manager
Florida Registration No. 38189

KBM/PAK/CHC:kbm/pak/ks
T:\Environmental\1999\99-6690\A\Waste Exploration revised 09-20-2002.wpd

cc: Mr. Mark A. Naughton, Orange County Risk Management

TABLE 1

FORMER GOOD HOMES ROAD LANDFILL, ORANGE COUNTY, FLORIDA

Waste Information from Test Borings

Boring No.	X (Feet)	Y (Feet)	Depth of Boring (Feet)	Depth to Top of Waste (Feet)	Depth to Base of Waste (Feet)	Land Surface Feet (NGVD)	Depth to Groundwater (Feet)	Date
Previous Ardaman & Associates Borings								
AB-1	-98	-962	20	1.5	16	113	16	10/13/88
AB-2	-238	-815	15	2	14	114	GNE	10/13/88
AB-3	-375	-948	15	0	>15	113	GNE	10/13/88
AB-4	-505	-775	20	0	>20	115	16	10/13/88
AB-5	-640	-950	15	0	>15	113	GNE	10/13/88
AB-6	-770	-820	15	0	>15	114	GNE	10/13/88
AB-7	-918	-947	15	0	>15	113	GNE	10/13/88
AB-8	-1045	-825	15	0	>15	114	GNE	10/13/88
AB-9	-1175	-945	20	WNE	WNE	113	18.5	10/13/88
	For Transfer Station Truck Scale [A&A File No. 99-6307]							
B-1	-662	-40	20	WNE	WNE	116	11.3	01/26/99
B-2	-678	-75	20	7.5	13.5	118	11.9	01/26/99
B-3	-680	-107	70	9.5	18	117		01/21/99
B-4	-710	-115	10.5	7.5	>10.5	119	GNE	01/26/99
B-5	-682	-132	10.5	7.5	9	118	GNE	01/26/99
B-6	-680	-158	20	1.5	14	118	14.6	01/25/99
B-7	-710	-158	7.5	3	>7.5	119	GNE	01/26/99
B-8	-682	-187	60	3.5	17	119		01/21/99
B-9	-682	-212	20	3	14.5	119	5 [1]	01/25/99
B-10	-683	-253	20	1.5	13.5	119	5 [1]	01/25/99
B-11	-658	-287	20	3	7	119	15.9	01/25/99
Soil & Material Engineers Borings								
AB-1	50	-267	10	WNE	WNE		GNE	03/07/86
AB-2	30	-235	10	WNE	WNE		GNE	03/07/86
AB-3	-21	-240	10	2	>10		GNE	03/07/86
AB-4	-76	-240	34	2	18		GNE	03/07/86
AB-5	-126	-240	25	2	18		12	03/07/86
AB-6	-174	-242	25	2	18		10.5	03/07/86
AB-7	-223	-245	20	1.25	18		8	03/07/86
AB-8	-274	-245	19	1	9		8	03/07/86
AB-9	-370	-245	19	1	18		8	03/07/86
AB-10	-537	-252	24	2	16		GNE	03/07/86
AB-11	-704	-242	25	1	17		GNE	03/07/86
AB-12	-558	-102	10	WNE	WNE		GNE	03/07/86
AB-13	-728	-21	20	7	12		GNE	03/07/86
AB-14	-560	152	10	WNE	WNE		GNE	03/07/86
AB-15	-728	142	10	WNE	WNE		GNE	03/07/86
AB-16	-723	-211	ND	ND	ND		ND	03/86
AB-17	-730	-161	ND	ND	ND		ND	03/86
AB-18	-730	-111	ND	ND	ND		ND	03/86

TABLE 1

FORMER GOOD HOMES ROAD LANDFILL, ORANGE COUNTY, FLORIDA

Waste Information from Test Borings

Boring No.	X (Feet)	Y (Feet)	Depth of Boring (Feet)	Depth to Top of Waste (Feet)	Depth to Base of Waste (Feet)	Land Surface Feet (NGVD)	Depth to Groundwater (Feet)	Date
AB-19	-628	-117	ND	ND	ND		ND	03/86
AB-20	-360	82	ND	ND	ND		ND	03/86
AB-21	-371	95	ND	ND	ND		ND	03/86
AB-22	-303	-72	15	WNE	WNE		7	02/17/87
AB-23	-234	-100	24	1	12		8	02/17/87
AB-24	-172	-96	15	0.5	>15		9	02/17/87
AB-25	-135	-135	15	1	>15		8	02/17/87
B-1	-745	25	20	WNE	WNE		10	02/16/87
B-2	-342	77	20	WNE	WNE		10	02/16/87
B-3	-302	77	20	WNE	WNE		12	02/16/87
B-4	-302	171	20	WNE	WNE		10	02/16/87
B-5	-543	-64	30	WNE	WNE		7	02/16/87
B-6	-431	-64	30	WNE	WNE		6	02/16/87
B-7	-540	-15	40	WNE	WNE		23	02/16/87
B-8	-431	-16	40	WNE	WNE		21	02/16/87
HA-1	-334	-201	3	0	>3		2.5	03/86
HA-2	-432	-215	2	0	>2		2.5	03/86
HA-3	-529	-220	3	0	>3		2	03/86
Ardaman & Associates Borings for This Exploration								
AB-1	-480	-305	27	0	23		21	07/16/01
AB-2	-330	-305	27	0	22		21	07/16/01
AB-3	-180	-305	25	0	22		15	07/16/01
AB-4	-30	-305	25	0	22		16	07/16/01
AB-5	-30	-405	25	0	21		17	07/16/01
AB-6	-30	-555	25	0	20		18	07/16/01
AB-7	-30	-705	22	0	22		–	07/16/01
AB-8	-70	-840	27	0	22		18	07/16/01
AB-9	-15	-1030	7	WNE	WNE		GNE	07/17/01
AB-10	-180	-405	27	0	21		18	07/17/01
AB-11	-330	-405	27	0	22		18	07/17/01
AB-12	-480	-405	27	0	22		18	07/17/01
AB-13	-780	195	7	WNE	WNE		GNE	07/17/01
AB-14	-780	45	16	0	12		GNE	07/17/01
AB-15	-780	-105	27	0	23		18	07/17/01
AB-16	-780	-405	20	0	>20		17	07/17/01
AB-17	-780	-555	20	0	>20		18	07/17/01
AB-18	-780	-705	27	0	22		18	07/17/01
AB-19	-930	-705	20	0	>20		18	07/17/01
AB-20	-930	-555	20	0	20		17	07/17/01
AB-21	-930	-405	20	0	>20		18	07/17/01
AB-22	-780	-255	20	6	20		4.5	09/20/01

TABLE 1
FORMER GOOD HOMES ROAD LANDFILL, ORANGE COUNTY, FLORIDA
Waste Information from Test Borings

Boring No.	X (Feet)	Y (Feet)	Depth of Boring (Feet)	Depth to Top of Waste (Feet)	Depth to Base of Waste (Feet)	Land Surface Feet (NGVD)	Depth to Groundwater (Feet)	Date
AB-23	-930	-255	20	1.5	17		17	07/18/01
AB-24	-930	-105	20	1	17.5		17	07/18/01
AB-25	-930	45	20	3	>20		17	07/18/01
AB-26	-930	195	27	1.5	22		18	07/20/01
AB-27	-1080	195	20	1	>20		17	07/20/01
AB-28	-1080	45	7	WNE	WNE		GNE	07/20/01
AB-29	-1080	-105	7	WNE	WNE		GNE	07/20/01
AB-30	-1080	-255	20	7	>20		18	07/20/01
AB-31	-1080	-405	20	4	>20		18	07/20/01
AB-32	-1080	-555	20	4	>20		17.5	07/20/01
AB-33	-1080	-705	27	4	23		18	07/20/01
AB-34	-1230	-705	15	WNE	WNE		GNE	07/20/01
AB-35	-1190	-555	20	2	>20		17	07/20/01
AB-36	-1190	-405	20	5	>20		18	07/20/01
AB-37	-1230	-255	20	8	20		4	09/20/01
AB-38	-1230	-105	20	3	20		14	09/20/01
AB-39	-1230	45	20	3	5		14	09/20/01
AB-40	-1230	195	20	3	5		16	09/20/01
AB-41	-180	-555	20	1	>20		–	09/19/01
AB-42	-330	-555	20	0	19		4	09/19/01
AB-43	-480	-555	20	0	15		6	09/19/01
AB-44	-630	-555	20	0	13		8	09/19/01
AB-45	-630	-705	20	0	16		16	09/19/01
AB-46	-480	-705	20	0	16		5	09/19/01
AB-47	-330	-705	20	0	>20		8	09/19/01
AB-48	-180	-705	20	0	19		–	09/19/01
AB-49	-630	-405	20	4	>20		GNE	09/20/01
AB-50	-1282	-852	20	WNE	WNE		13	09/20/01
TH-1	-660	180	60	WNE	WNE	126	21	07/30/01
TH-2	-1230	-350	60	3	18.5	119	16	08/05/01
TH-3	-63	-489	60	3.5	6	117.5	17	07/31/01
TH-4	-881	-1038	60	0	5	113	23	08/06/01
TH-5	-301	-1034	60	0	2	113	22	08/02/01
Ardaman & Associates Supplemental Hand Auger Borings								
HAB-1	-1289	106	4.5	WNE	WNE		GNE	11/29/01
HAB-2	-1289	-145	1.5	1.5			GNE	11/29/01
HAB-3	-1286	-412	5	WNE	WNE		GNE	11/29/01
HAB-4	-1286	-545	2.5	2			GNE	11/29/01
HAB-5	-1271	-745	1	1			GNE	11/29/01
HAB-6	-124	-1056	5	WNE	WNE		GNE	11/29/01
HAB-7	-379	-1058	4	WNE	WNE		GNE	11/29/01

TABLE 1

FORMER GOOD HOMES ROAD LANDFILL, ORANGE COUNTY, FLORIDA

Waste Information from Test Borings

Boring No.	X (Feet)	Y (Feet)	Depth of Boring (Feet)	Depth to Top of Waste (Feet)	Depth to Base of Waste (Feet)	Land Surface Feet (NGVD)	Depth to Groundwater (Feet)	Date
HAB-8	-657	-1053	5	WNE	WNE		GNE	11/29/01
HAB-9	-795	-1051	5	WNE	WNE		GNE	11/29/01
HAB-10	-1042	-1046	1.5	1			GNE	11/29/01
HAB-11	-1140	-1050	5	WNE	WNE		GNE	11/29/01
HAB-12	-1233	-1051	2	WNE	WNE		GNE	11/29/01
Ardaman & Associates Supplemental Auger Borings								
AB-51	-1276	-20	20	2.5	6.5		GNE	05/10/02
AB-52	-1285	-278.5	20	3.5	8		GNE	05/10/02
AB-53	-1285	-478.5	20	WNE	WNE		17	05/10/02
AB-54	-1283	-645	20	4	9		GNE	05/10/02

GNE – Groundwater Not Encountered

WNE – Waste Not Encountered

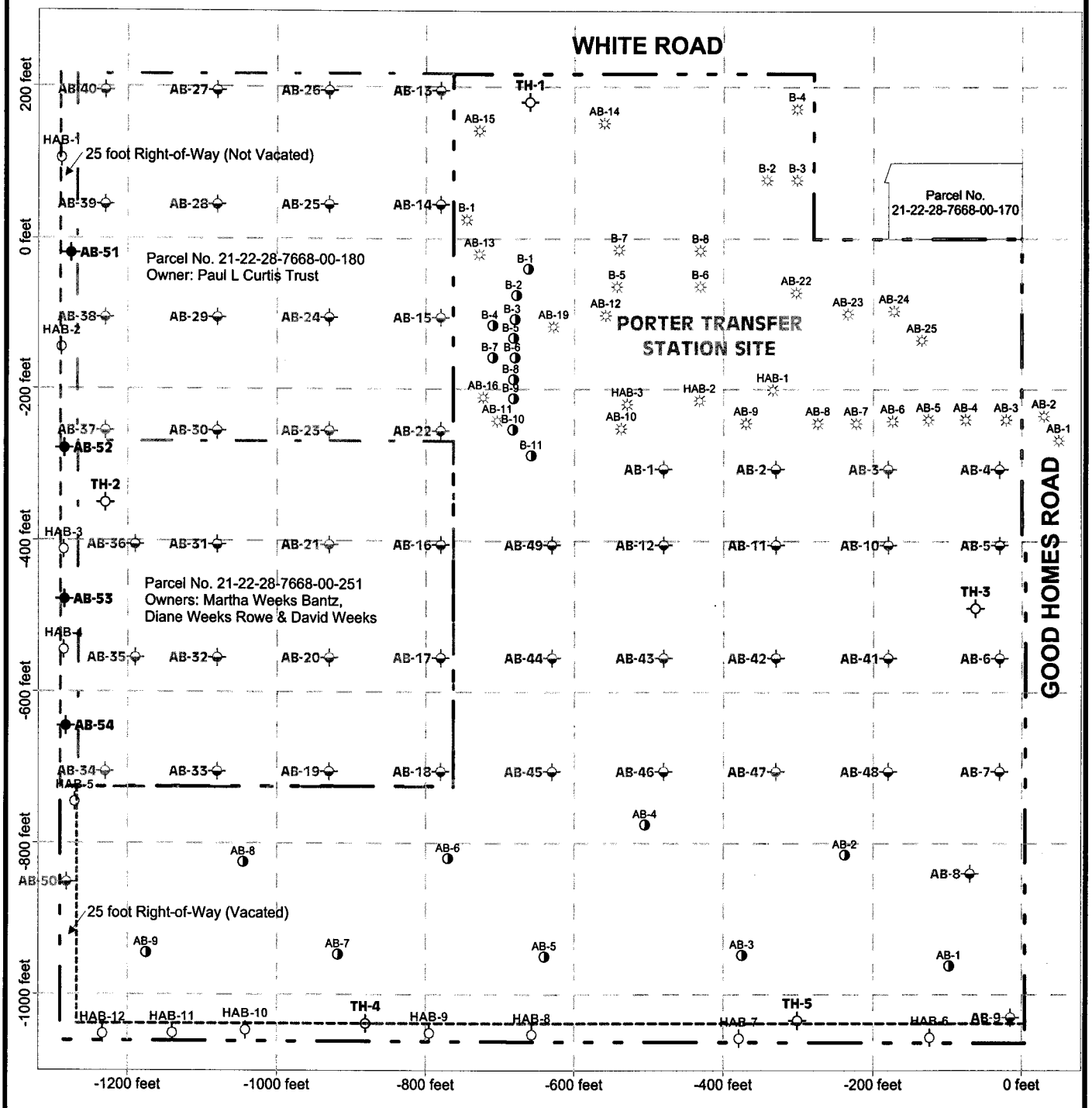
AB - Auger Boring

B - Boring (auger boring)

HA - Hand Auger Boring

TH - Test Hole (SPT Boring)

HAB - Hand Auger Boring



B-1 ◑ Previous Ardaman & Associates (A&A) boring

AB-1 ☼ Previous Soil & Material Engineers, Inc. (S&ME) boring

AB-1 ⊕ GPA/A&A auger boring

TH-1 ⊕ A&A SPT boring

HAB-1 ○ A&A hand auger boring

AB-51 ◆ A&A supplemental auger boring location

——— - - - - ——— Property Line

N

0 100 200

SCALE —— 1" = 200'

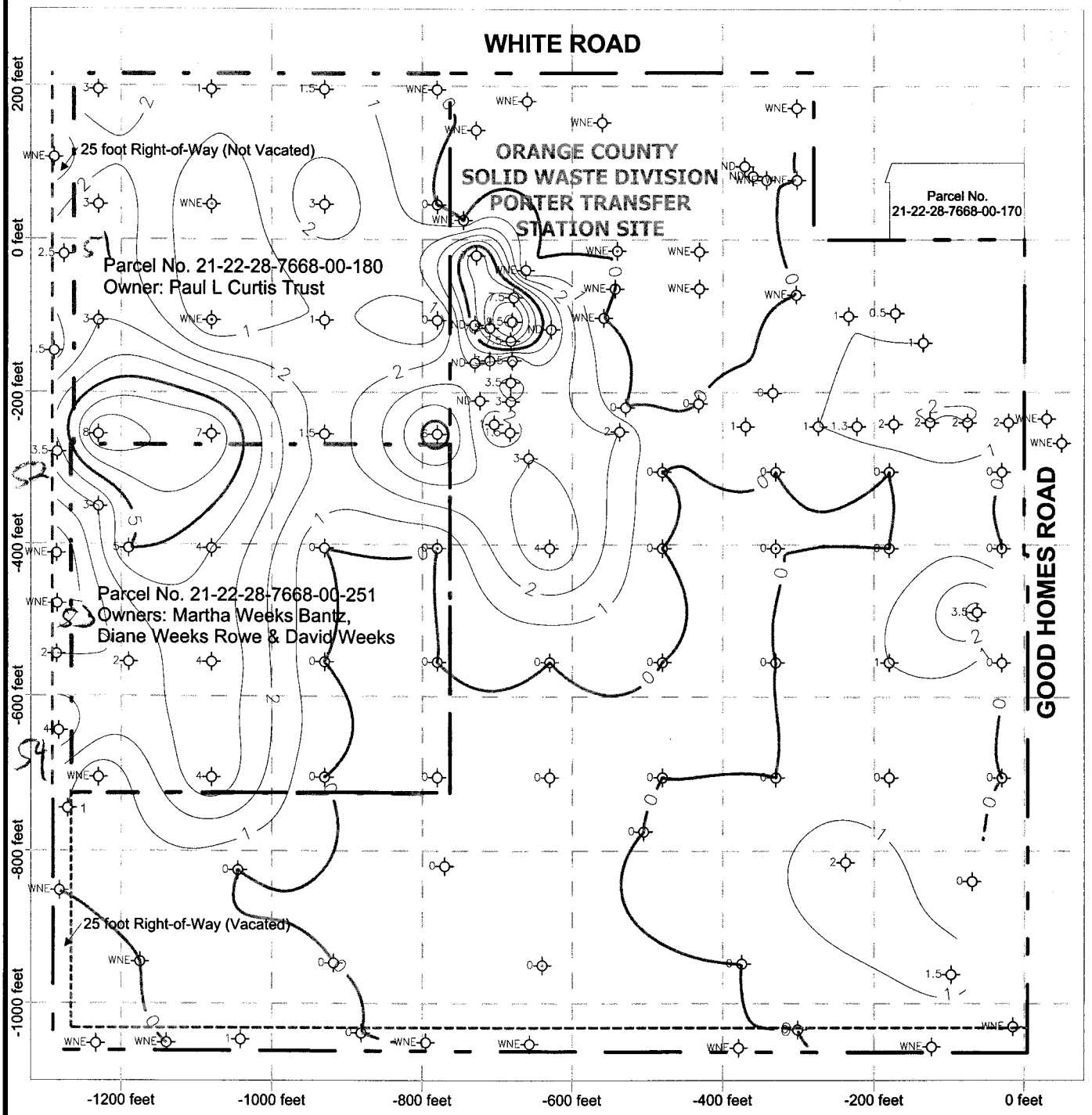
BORING LOCATIONS

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

ORANGE COUNTY UTILITIES
SOLID WASTE DIVISION
FORMER GOOD HOMES ROAD LANDFILL
SUBSURFACE SOIL/WASTE EXPLORATION
ORANGE COUNTY, FLORIDA

DRAWN BY: KBM	CHECKED BY:	DATE: 05/20/2002
FILE NO.: 99-6690A	APPROVED BY:	FIGURE: 1

REVISED 06/04/2002



Boring locations

WNE Waste Not Encountered

ND No Data

N

0 100 200

SCALE — 1" = 200'

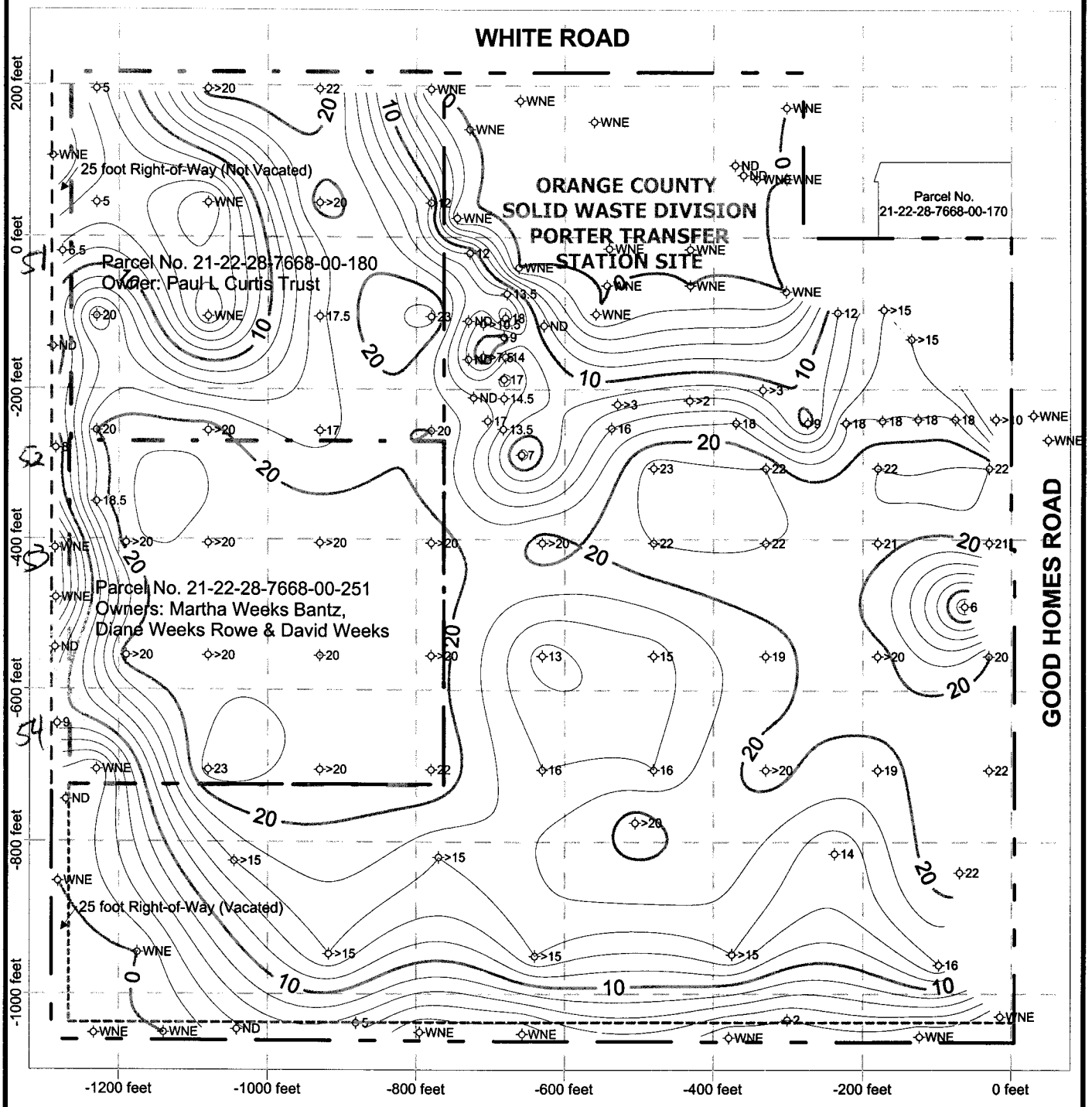
DEPTH TO TOP OF WASTE, FEET BELOW LAND SURFACE

REVISED 06/04/2002

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

ORANGE COUNTY UTILITIES
SOLID WASTE DIVISION
FORMER GOOD HOMES ROAD LANDFILL
SUBSURFACE SOIL/WASTE EXPLORATION
ORANGE COUNTY, FLORIDA

DRAWN BY: KBM	CHECKED BY:	DATE: 05/20/2002
FILE NO.: 99-6690A	APPROVED BY:	FIGURE: 2



◇ Boring locations

WNE Waste Not Encountered

ND No Data

N

0 100 200

SCALE — 1" = 200'

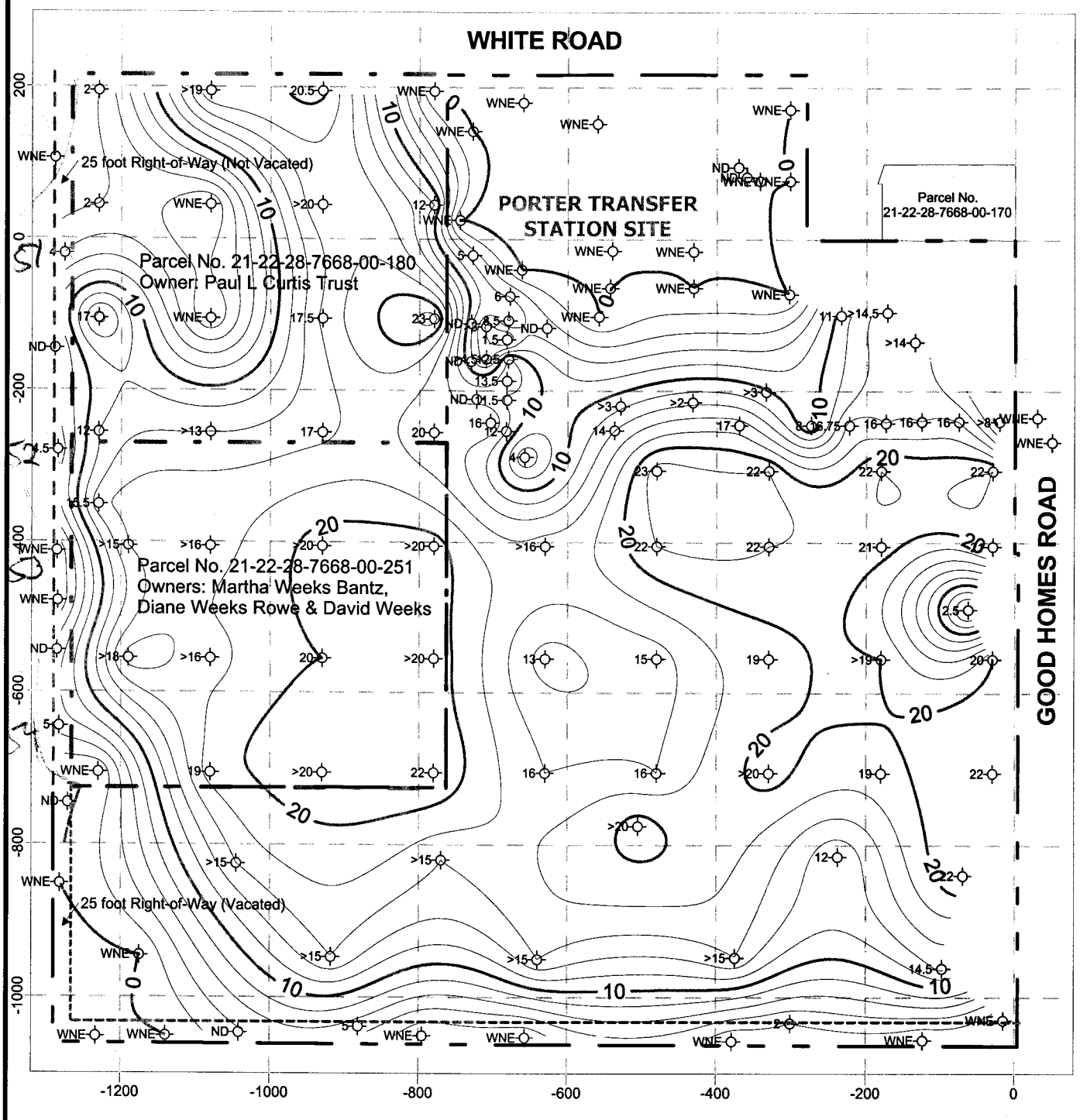
DEPTH TO BOTTOM OF WASTE, FEET BELOW LAND SURFACE

REVISED 06/04/2002

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

ORANGE COUNTY UTILITIES
SOLID WASTE DIVISION
FORMER GOOD HOMES ROAD LANDFILL
SUBSURFACE SOIL/WASTE EXPLORATION
ORANGE COUNTY, FLORIDA

DRAWN BY: KBM	CHECKED BY:	DATE: 05/20/2002
FILE NO.: 99-6690A	APPROVED BY:	FIGURE: 3



◇ Thickness of waste (feet) at boring location

WNE Waste Not Encountered

ND No Data

N

0 100 200

SCALE — 1" = 200'

THICKNESS OF WASTE

REVISED 06/04/2002

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

ORANGE COUNTY UTILITIES
SOLID WASTE DIVISION
FORMER GOOD HOMES ROAD LANDFILL
SUBSURFACE SOIL/WASTE EXPLORATION
ORANGE COUNTY, FLORIDA

DRAWN BY: KBM	CHECKED BY:	DATE: 05/20/2002
FILE NO.: 99-6690A	APPROVED BY:	FIGURE: 4