2015-001782

THE STATE OF SOUTH CAROLINA
In The Supreme Court

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APPEAL FROM THE ADMINISTRATIVE LAW COURT

Shirley C. Robinson, Administrative Law Judge

Unpublished Opinion No. 2015-UP-269 (S.C. Ct. App. Filed May 27, 2015)

Grand Bees Development, LLC, ... Respondent,

v.

South Carolina Department of Health and Environmental Control and County of Charleston,

Of which, County of Charleston is . . . . . Petitioner.

APPENDIX TO THE PETITION FOR WRIT OF CERTIORARI
Volume I of III

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THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM THE ADMINISTRATIVE LAW COURT

Shirley C. Robinson, Administrative Law Judge

Docket No. 2011-ALJ-07-0556-CC

Grand Bees Development, LLC, ... Respondent,

v.

South Carolina Department of Health and
Environmental Control and County of Charleston, ... Appellants.

RECORD ON APPEAL

Volume I of II

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FILED
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SC ADMIN. LAW COURT

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

Grand Bees Development, LLC, Petitioner, vs. South Carolina Department of Health and Environmental Control and County of Charleston, Respondents.	Docket No. 11-ALJ-07-0556-CC **FINAL ORDER AND DECISION**

APPEARANCES:

For the Petitioner:	G. Trenholm Walker, Esquire Jamie A. Khan, Esquire
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This matter comes before the South Carolina Administrative Law Court ("ALC" or "Court") pursuant to S.C. Code Ann. §1-23-600(A) and S.C. Code Ann. §44-1-60(F)(2) upon the Request for a Contested Case Hearing filed by Grand Bees Development, LLC ("Petitioner"). Petitioner contests the September 1, 2011 final agency decision of Respondent South Carolina Department of Health and Environmental Control ("DHEC"), to issue a modified permit to Respondent Charleston County ("County") for the expansion of the Class II Landfill that is part of the County's Bees Ferry Landfill. On September 12, 2011, Petitioner filed a timely request for a Final Review Conference, and on October 13, 2011, the DHEC Board decided not to grant discretionary review. Thereafter, on November 2, 2011, Petitioner filed a Request for Contested Case Hearing with this Court.

In its Request for Contested Case Hearing, Petitioner asserts that the County's proposed expansion of the Class II Landfill violates applicable regulations and statutes and that this Court should vacate the modified permit.

The Court conducted a hearing on the merits on March 20, 2012, at the Administrative Law Court in Columbia, South Carolina.

FINDINGS OF FACT

Having observed the witnesses and exhibits presented, weighed their credibility, and taking into consideration the burden of persuasion of the parties, I make the following findings of fact by a preponderance of the evidence:

1. Notice of the time, date and nature of the hearing was timely given to all parties.

2. Petitioner is the owner of a tract of land comprised of approximately 311 acres, located off Bees Ferry Road in the City of Charleston, South Carolina (Charleston County TMS# 301-00-00-035) (the "Grand Bees Property"). Petitioner purchased the Grand Bees Property on November 15, 2004.

3. The Grand Bees Property is zoned Planned Unit Development ("PUD") by the City of Charleston ("City") and is designated for residential land use. The Grand Bees Property is part of a larger PUD in the City called Bees Landing, which was first approved by City Council in March of 1993. Also known to the public as Grand Oaks Plantation ("Grand Oaks"), the Bees Landing PUD has been amended numerous times by City Council – most recently on February 14, 2012. At the time of the hearing, there were nine distinct and completed neighborhoods in Grand Oaks totaling approximately 1,500 homes, along with various city parks and other amenities.

4. The Grand Bees Property represents approximately twenty-five percent (25%) of the total land area in Grand Oaks. Under the Bees Landing PUD, the Grand Bees Property is designated for residential development. It is one of the last remaining components of Grand Oaks that is not yet fully built-out.

5. Petitioner has paid its share of dues and assessments of the Master Grand Oaks Association since acquiring the Property in 2004.

6. Various other residential developments are located in the vicinity of Grand Oaks including, but not limited to, The Hunt Club and Long Savannah (residential PUD's in the City of Charleston) located to the west and north of the Grand Bees Property.

7. The County operates the Bees Ferry Landfill (Charleston County TMS# 301-00-00-026) (the "Landfill"), located on Bees Ferry Road in the unincorporated part of the County. Bees Ferry Road abuts Grand Oaks and the Grand Bees Property. The Landfill and the Grand

Bees Property share a common boundary along the Grand Bees Property's southwest property line.

8. Charleston County disposes of various types of waste at the Landfill, and the portion of the Landfill adjacent to the Grand Bees Property is a DHEC Class II Landfill. This landfill had been classified under former DHEC regulations (prior to May 23, 2008) as a construction, demolition, and land clearing debris landfill ("C&D Landfill").

9. The Petitioner is in the business of residential development, and as such, purchases land, plans the residential project, obtains land plan approval, engineers the improvements to the land, obtains other necessary approvals and permits, builds the infrastructure, installs the utilities, subdivides the land into lots, and then sells the residential lots to home builders.

10. Prior to purchasing the Grand Bees Property, Petitioner conducted due diligence that included reviewing the Grand Bees Property's zoning, the C&D Landfill's DHEC Permit ("C&D Permit"), and the County regulations applicable to the Landfill. Petitioner's representatives also met with Charleston County solid waste officials prior to purchasing the Grand Bees Property. At the conclusion of its due diligence, the Petitioner determined that according to the County's zoning ordinances, the County would need to obtain a special exception from the Charleston County Board of Zoning Appeals as a prerequisite to expansion of the C&D mound adjacent to the Grand Bees Property.

11. Under the County's zoning ordinances a special exception requires a public hearing that allows comments from the public. A special exception would also require the County to directly notify adjacent property owners, such as Petitioner.

12. On November 15, 2004, Petitioner closed on the Grand Bees Property for $4,141,518.00.

13. Consistent with its zoning for residential use under the Bees Landing PUD, Petitioner obtained site plan approval from the City for 507 residential units in February 2006. After obtaining site plan approval, Petitioner proceeded to incur extensive engineering costs for the necessary infrastructure improvements to the Grand Bees Property to accomplish the residential development.

14. Taylor Bush, one of Petitioner's principals, testified that his company has so far invested approximately $8,000,000 in the acquisition and development of the Grand Bees

Property.

15. The County has operated the Landfill at its current location since approximately 1977. Pursuant to the S.C. Solid Waste Policy and Management Act of 1991 (the "Act"), the County has operated the C&D/Class II Landfill under DHEC Permit Number 101001-1201 since October 17, 1997.

16. In July 2007, the County applied to DHEC to amend its C&D Permit at the Bees Ferry Landfill, and in November 2007, the County revised its application. The County's application sought to enlarge the vertical height limitation from 74' above mean sea level ("MSL") to 168' MSL and to expand the footprint of the C&D by 5.5 acres. As stated in its application, the increases would expand the C&D Landfill's maximum disposal capacity from approximately 2.5 to 5.4 million cubic yards, more than doubling its size.

17. The vicinity map, included in the County's 2007 permit application as required by regulation, found at Page G-04 of the application, identifies the adjoining Grand Bees Property as zoned PUD with the land use specified as residential. The vicinity map (dated 2004) used in the 2007 application is based on a 2001 aerial photograph.

18. Although at the time of its application the County knew Petitioner was in the process of developing the Grand Bees Property for residential units, the County did not directly notify Petitioner of the County's application to DHEC to expand the size of the C&D Landfill.

19. DHEC granted the modification of DHEC Permit Number 101001-1201 (the "First Permit Modification") on January 17, 2008. The Petitioner learned of the County's application a few days after the First Permit Modification's issuance.

20. Thereafter, Petitioner requested a contested case hearing to challenge the issuance of the First Permit Modification. The Honorable Ralph King Anderson, III conducted a hearing on January 13th and 14th, 2009 (Docket No. 08-ALJ-07-0198-CC). Judge Anderson ultimately ruled that DHEC erred in granting the permit because the County failed to obtain a special exception in accordance with its own zoning ordinances and the Zoning and Land Development Regulations ("ZLDR"). As a result, the modified permit was inconsistent with local zoning, land use, and other applicable regulations in violation of S.C. Code Ann. § 44-96-290(F). By Order dated June 2, 2009, Judge Anderson vacated the First Permit Modification and remanded it to DHEC.

21. After Judge Anderson issued his order vacating the First Permit Modification, the

County amended its ZLDR to eliminate the requirement of a special exception for the expansion of the Bees Ferry Landfill.

22. The County's zoning amendment, eliminating the need for a special exception, was approved in 2010. DHEC considered the previously filed permit application from 2007 to re-issue the permit modification for expansion of the Class II landfill. The County did not submit a new permit application nor did DHEC require one. The County merely provided some additional information, primarily dealing with zoning, to supplement its 2007 application.

23. Since the County's initial 2007 application, the General Assembly substantially revised DHEC's regulations governing solid waste landfills. Specifically, DHEC reviewed the First Permit Modification in 2007 and 2008 under then applicable S.C. Code Regs. 61-107.11. S.C. Code Regs. 61-107.19 repealed and replaced S.C. Code Regs. 61-107.11 on May 23, 2008.

24. Kent Coleman, Director of DHEC's Division of Mining and Solid Waste Management testified that, on remand from this Court, it evaluated the 2007 permit application under the new regulations. Since the new regulations contained new groundwater monitoring regulations, DHEC required the County to supplement its application in this regard. However, DHEC did not otherwise require the County to update its application.

25. Mr. Coleman further testified that in addition to the vicinity map based on the 2001 aerial photograph, DHEC subsequently consulted "numerous aerial photographs throughout the process ... that were more updated through time." However, none of these other aerial photographs are in the record.

26. As for DHEC's consistency determination after the First Permit Modification was vacated, on April 12, 2011, Mary Varga with DHEC sent an internal memorandum with the subject line "Review of Charleston County ZLDR" to Tim Eleazer with DHEC (the "Consistency Memorandum") stating that "[s]taff initiated a review that included the Charleston County's Zoning Ordinance, last amended on December 16, 2010, the Charleston County zoning map, and a letter dated February 3, 2005, from the Charleston County's Planning Department to determine if [the Bees Ferry Class II Landfill Expansion] is consistent with local zoning."

27. The Consistency Memorandum concluded that DHEC "has determined that the proposed expansion is consistent with the Charleston County land-use planning and zoning." However, the Consistency Memorandum does not state that any other local ordinances, including any contained in other chapters of the Charleston County Code of Ordinances, were consulted in

addition to the ZLDR during DHEC's consistency review process. The Consistency Memorandum represents the only written documentation of DHEC's official consistency determination in the record.

28. DHEC approved a draft permit modification on April 18, 2011; and on April 18, 2011, DHEC published public notice of the draft permit modification in *The Post & Courier*, the Charleston daily newspaper. A public hearing on the draft permit modification was held on July 13, 2011. Petitioner's representative along with other individuals from Grand Oaks and the community attended and offered comments.

29. On September 1, 2011, DHEC rendered its final decision on remand and issued a new permit modification of DHEC Permit Number 101001-1201 (the "Second Permit Modification"). The Second Permit Modification authorizes the County to make the same modifications to the Class II Landfill as the First Permit Modification, i.e. increasing the height of the Class II Landfill from 74 feet MSL to 168 feet MSL, increasing the annual disposal limit from 182,000 tons per year to 200,000 tons per year, more than doubling its overall capacity, and expanding the footprint by 5.5 acres. Mr. Coleman approved and signed both the First and Second Permit Modifications.

30. During the hearing, Mr. Coleman testified that DHEC's permitting authority is subject to the requirements of the Act and its implementing regulations, namely S.C. Code Regs. 61-107.19. He further testified that under S.C. Code Ann. § 44-96-290(F) and S.C. Code Regs. 61-107.19, a permit cannot be issued by DHEC unless the expansion allowed by the permit is also consistent with local zoning and land use ordinances.

31. S.C. Code Regs. 61-107.19, Part I (D)(1)(a) requires that prior to the submittal of a permit application for a new or expanded landfill, the applicant must demonstrate, among other things, that the activity is consistent with local zoning, land use, and other applicable ordinances under S.C. Code Ann. § 44-96-290(F). Additionally, S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that consistency determinations made pursuant to Part I (D)(1)(a) "prior to the effective date of this regulation . . . shall remain applicable and become the agency's final determination . . . subject to the appeal provision in Part I (D)(1)(c) . . . ."

32. In his testimony, Mr. Coleman stated that DHEC deemed the consistency requirement of S.C. Code Ann. § 44-96-290(F) satisfied once DHEC learned that the County had amended the ZLDR to eliminate the need for a special exception for expansion of the landfill.

Therefore, DHEC did not consider other applicable County ordinances.

33. Also, during the hearing before this Court, the Petitioner offered into evidence a certified copy of County Ordinance #180, adopted by County Council on March 5, 1974, which is presently codified (with minor typographical modifications) at Section 10-22 of the Charleston County Code of Ordinances (hereinafter, "Section 10-22"). Counsel for both the County and DHEC stipulated that Section 10-22 (titled "Disposal Sites and Facilities") was in effect when the original permit application was filed in 2007 and when the Second Permit Modification was issued. Moreover, wording in this Section shows that it applies to "[a]ll owners or operators of solid waste disposal facilities including governmental units or agencies." The Section also provides that certain site design regulations are triggered "[w]hen a new sanitary landfill is constructed or an existing site is extensively re-designed." (Emphasis added.)

34. The site design regulations include Section 10-22(2)(d), which provides that all disposal sites shall "conform with the surrounding environment." Section 10-22(2)(e) provides that solid waste disposal sites must also "conform with future development of the area." The County never brought Section 10-22 to DHEC's attention. Furthermore, Mr. Coleman testified that DHEC did not consider Section 10-22 when deciding whether to grant the Second Permit Modification and he did not become aware of it until his deposition in preparation for this hearing. There is also no mention of Section 10-22 in the Consistency Memorandum.

35. The Consistency Memorandum does not reference the Charleston County Code of Ordinances – it only references the ZLDR. There is no evidence in the record that Section 10-22 or the County's Code of Ordinances, more generally, was ever reviewed by DHEC to determine whether the requested permit modification was consistent with all applicable local ordinances.

36. According to Mr. Coleman, Section 10-22 was irrelevant to DHEC's consistency determination because its "generalized language is not applicable . . . in the sense that it doesn't change anything and doesn't specify anything about . . . the requirements that the local zoning does not already cover."

37. Petitioner's expert, John S. Lester, P.E. ("Lester") (the President of HLA, Inc., a civil engineering and landscape architecture firm in Charleston), Mr. Bush, and Wallace A. Jack ("Jack") (a board member of the Grand Oaks Boulevard Association), all testified to the rapidly expanding and residential character of the area surrounding the landfill since 2001. These witnesses testified that increasing the maximum height of the Class II Landfill from 74 feet to

168 feet (in addition to the other modifications allowed by the Second Permit Modification) would neither be compatible with nor conform to current and future development in the area. They expressed concerns about noise, dust, aesthetics, and increased traffic from operations associated with the requested expansion of the Class II Landfill. Specifically, Mr. Bush testified that the Second Permit Modification would have a "significant impact" on his ability to develop and market the Grand Bees Property due to the expansion's incompatibility and nonconformance with adjacent residential development.

38. Mr. Lester testified that the 168-foot maximum height of the Class II Landfill, allowable by the Second Permit Modification, would match or exceed many of the tallest structures in Charleston County, including the driving surface of the Arthur Ravenel, Jr. Bridge (the New Cooper River Bridge) as well as what is possibly Charleston's tallest building, the Holiday Inn along the Ashley River. In addition, he testified that based on the to-scale, engineering models his firm had produced, a 168-foot Class II Landfill would be clearly visible over the tree lines and buffers of the surrounding neighborhoods, including both the Grand Bees Property and other parts of the Grand Oaks community.

39. In addition to these models, Petitioner offered two updated aerial photographs of the landfill and its surrounding area, depicting the status of existing and planned residential development as of 2008 and 2012. These developments include, but are not limited to, the Grand Bees Property, the several other neighborhoods in Grand Oaks, and other residential developments adjacent to the Landfill. The updated aerials show vast changes in the surrounding areas since 2001.

40. After Judge Anderson vacated the First Permit Modification in 2009, DHEC never required and the County never provided a vicinity map with aerial photography updated from 2001. The vicinity map DHEC relied on in making its permitting decision does not reflect the substantial growth in residential development the area has experienced over the last ten years and will experience in the coming years. In contrast, the updated aerials depict the state of existing and future residential development as of 2008 and 2012.

41. Aside from Section 10-22 of the Charleston County Code of Ordinances, Chapter 9 of the ZLDR contains Development Standards which are generally applicable to new and expanding development. These Standards are intended "to protect the public health, safety, and general welfare;" "to promote harmonious and orderly development;" and "to foster civic beauty

by improving the appearance, character and economic value of civic, commercial and industrial development within the unincorporated areas." Article 9.1, ZLDR. These Development Standards are also designed to: "Implement the use of vegetated buffers in order to mitigate the effects of incompatible adjacent uses, to provide transition between neighboring properties and streets, to moderate climatic effects, and to minimize noise and glare." Article 9.1, ZLDR.

42. The landscaping, screening, and buffering regulations provide that "[w]hen modifications or additions are being made to an existing non-residential building or site, the standards of this Article shall apply to those portions of the subject parcel that are directly affected by the proposed improvements, as determined by the Planning Director . . . ." Article 9.5, ZLDR. In essence, the landscaping, screening, and buffering requirements are applicable to modifications of non-residential sites in Charleston County, including "waste-related uses." Article 9.5.1 and Article 9.5.4(A)(4), ZLDR.

43. In this instance, the County's regulations require a one hundred (100) foot vegetative buffer between the Class II Landfill and Petitioner's property, specifically nine (9) canopy trees, eleven (11) understory trees and fifty (50) shrubs per one hundred (100) feet of linear buffer along the property line. However, the approved Second Permit Modification drawings contain no reference to the County's landscaping regulations, no description or requirement of the vegetation that would be required to be planted, and no planting or landscaping plan.

44. The Petitioner's witness, Mr. Lester, testified that in practice, landscaping plans are submitted and required by local government to prove compliance with buffer and landscaping regulations as a precondition to land development. However, no landscaping plan or similar documentation was included either in the County's 2007 application, as supplemented, or the Second Permit Modification itself.

45. Mr. Lester further testified that in 2009 and 2012, his firm physically inspected the one hundred (100) foot space between the Class II Landfill and Petitioner's Property, and observed that it does not meet the specific requirements of the ZLDR, by not containing the vegetative buffering requirements. Additionally, the 100 foot space is utilized as an access road by the County around the Landfill.

46. Beyond consistency with the ZLDR and the County's Code of Ordinances, under S.C. Code Regs. 61-107.19 Part IV (B)(1)(a) a landfill's fill area boundary may not be located

within one thousand (1,000) feet of any "residence." As previously mentioned, the City approved the Grand Oaks PUD and the Petitioner's site plan for residential development several years before the County applied to DHEC for the expansion permit for its Class II landfill.

47. According to testimony provided by Mr. Bush, the planned development for the Grand Bees Property consists of various engineering phases, including Phase 7 adjacent to the Class II Landfill's common boundary. Mr. Bush further testified that Phase 7 has been both permitted for residential development by the City and engineered for water, sewer, storm system, and roadway infrastructure improvements.

48. Mr. Lester surveyed the common boundary between the Grand Bees Property and the Class II Landfill. He testified to the measurements performed, computer aided design ("CAD") plats produced, and the location of approximately 130 approved and planned residential lots on the Grand Bees Property located within 1,000 feet of the fill area boundary of the Class II Landfill Permit. Mr. Lester's analysis was based on the residential development approvals as well as Phase 7's engineering.

49. As set forth below, S.C. Code Regs. 61-107.19 neither defines "residence" nor provides a test for determining when a "residence" will be considered to be within 1,000 feet of a Class II Landfill. Additionally, the DHEC Board has no reported decision that interprets how the Department defines "residence" for purposes of its Solid Waste Act and the regulations propounded thereunder.

50. The Department's permitting decision in this case was based on the dictionary definition of "residence" that personnel interprets to mean a structure where someone lives or could live, as evidenced by a certificate of occupancy ("CO") granted by local government authorities. According to the Department's witness, Mr. Coleman, if a CO was granted within 1,000 feet of a residence "like a day prior to [a permit being issued], we would have to consider that in our decision . . . ."

51. The parties do not dispute that "there are proposed and planned residences . . . at this property."

CONCLUSIONS OF LAW

Based on the foregoing, I make the following legal conclusions:

1. The Administrative Law Court has jurisdiction over this contested case matter pursuant to S.C. Code Ann. §§ 1-23-600(A) and 44-1-60(F)(2) (Supp. 2012).

2. In contested case hearings, the Administrative Law Judge is the fact finder and makes a *de novo* determination regarding the matters at issue. Brown v. S.C Dep't. of Health and Envtl. Control, 348 S.C. 507, 520, 560 S.E.2d 410, 417 (2002).

3. The Petitioner, as the party challenging the issuance of the Permit to the County, bears the burden of proving, by a preponderance of the evidence, that the Permit issued by DHEC to the County did not meet the requirements of S.C. Code Ann. § 44-96-10 *et seq.* and S.C. Code Regs. 61-107. See Leventis v. S.C. Dep't. of Health and Envtl. Control, 340 S.C. 118, 132, 530 S.E.2d 643, 651 (Ct. App. 2000).

CONSISTENCY WITH LOCAL LAND USE ORDINANCES

4. S.C. Code Ann. § 44-96-290(F), contained in the Act, provides that: "[n]o permit to construct a new solid waste management facility or to expand an existing solid waste management facility within a county or municipality may be issued by the department unless the proposed facility or expansion is consistent with local zoning, land use, and other applicable local ordinances, if any."

5. Compliance with local zoning, land use, and other applicable local ordinances is a condition precedent to DHEC issuing a permit for an expansion of an existing solid waste facility. Southeast Resource Recovery, Inc. v. S.C. Dep't. of Health and Envtl. Control, 358 S.C. 402, 407-08, 595 S.E.2d 468, 471 (2004).

6. Our courts have held that "consistent with" means "comply with" in this context, and the two terms are regularly used interchangeably when discussing the requirements of S.C. Code Ann. § 44-96-290(F). See Southeast Resource Recovery, Inc., 358 S.C. at 408, 595 S.E.2d at 471.

7. A consistency determination by a county applicant does not control; the law requires that the permitting agency determine consistency for purposes of a state statute that requires consistency as a condition of permitting. Southeast Resource Recovery, Inc., 358 S.C. at 407-08, 595 S.E.2d at 471 ("[a]lthough Section 44-96-290(F) requires a proposed facility comply with local standards, it does not designate the county as the final arbiter on whether the proposed facility complies with its local zoning, land use, and other ordinances."). Clearly, DHEC is prohibited from delegating the consistency determination to local governments through letters of consistency or other means. Id. DHEC has the ultimate responsibility to ensure that it surveys and considers all local zoning, land use, and other applicable ordinances. Id.

8. The ALC, as *de novo* fact finder in contested case hearings, similarly must determine whether DHEC made a proper consistency determination. To decide whether DHEC made a proper consistency determination, this Court must determine whether DHEC reviewed all applicable local ordinances and whether the permit, as granted, is consistent with these ordinances. S.C. Code Ann. § 44-96-290(F); See Southeast Resource Recovery, Inc. v. South Carolina Dept. of Health and Environmental Control, 358 S.C. 402, 595 S.E.2d 468 (2004).

9. As a matter of law, Section 10-22 is an applicable local land use ordinance under S.C. Code Ann. § 44-96-290(F). It specifically governs solid waste disposal facilities (both new and expanded), including those owned and operated by governmental entities, including the County.

10. Section 10-22(1) applies various rules and regulations to "[a]ll owners or operators of solid waste disposal facilities including governmental units or agencies" (emphasis added). Additionally, Section 10-22(1)(c) provides that these site design regulations are triggered "[w]hen a new sanitary landfill is constructed or an existing site is extensively re-designed" (emphasis added). Among other things, Section 10-22(b) provides that the disposal site shall "conform with the surrounding environment" and "conform with future development of the area."

11. According to the South Carolina Supreme Court, zoning ordinances are not the only means by which local governments can regulate land use. Greenville County v. Kenwood Enterprises, 353 S.C. 157, 165, 577 S.E.2d 428, 432 (2003), overruled on other grounds by Byrd v. City of Hartsville, 365 S.C. 650, 620 S.E.2d 76 (2005) ("[W]hile the Comprehensive Planning Act governs zoning, it simply does not evince a legislative intent to completely prohibit any other local enactments from touching upon zoning or land use."): The terms of S.C. Code Ann. § 44-96-290(F) acknowledge this distinction as well by expressly differentiating between zoning and general land use ordinances: "No permit . . . may be issued by the department unless the proposed facility or expansion is consistent with local zoning, land use, and other applicable local ordinances . . . ." (emphasis added).

12. In this case, DHEC was required to consult *all* applicable land use ordinances in the Code, especially those specifically dealing with solid waste facilities, in addition to the ZLDR in order to fulfill the consistency requirement of S.C. Code Ann. § 44-96-290(F). However, DHEC never considered Section 10-22 in its consistency review.

13. DHEC's failure to review Section 10-22 is significant. Unlike other County ordinances including the ZLDR, Section 10-22 requires consideration of conformity with the surrounding environment and *future* development of the area. Given the evidence of substantial existing residential development in the area, and future development in the area, including, but not limited to Petitioner's development on the Grand Bees Property, consideration of Section 10-22 would have materially influenced DHEC's permitting decision. It is apparent in this instance that DHEC's consistency determination is materially incomplete and, therefore, facially invalid. As a result, DHEC violated the applicable law in granting the Second Permit Modification. S.C. Code Ann. § 44-96-290(F); Southeast Resource Recovery, Inc., 358 S.C. at 407-08, 595 S.E.2d at 471.

14. The Court rejects Respondents' argument that Section 10-22 is less specific and more vague than the ZLDR and therefore superseded by the ZLDR, making Section 10-22 irrelevant for the purposes of consistency review. It is the conclusion of this Court that Section 10-22 is a valid land use ordinance that exists in addition to the ZLDR. Respondents have presented no authority to support the view that the ZLDR preempts, for the purposes of DHEC's consistency analysis, an otherwise applicable valid land use ordinance simply due to the latter's being more specific. See e.g., Mikell v. County of Charleston, 386 S.C. 153, 687 S.E.2d 326 (2009) ("Where two ordinance provisions deal with the same issue, one in a general and the other in a more specific and definite manner, the more specific prevails.").

15. Respondents also argue that "broad, general statement of goals" cannot be relied upon in a consistency determination. Southeast Resource Recovery, Inc., 358 S.C. at 409, 595 S.E.2d at 472 (holding goals "to preserve, protect and enhance the environmental quality of Newberry County" is a broad, general statement of goals). The Court in Southeast Resource Recovery, Inc. noted that "[t]o hold otherwise would invite a reviewing court to conclude, on an arbitrary and capricious basis, any proposed landfill facility falls within the ambit of such general language." Id.

16. I conclude that the critical language of Section 10-22, namely "conform with the surrounding environment" and "conform with future development of the area," are not the sort of "broad, general statements of goals" that worried the Supreme Court in Southeast Resource Recovery, Inc. Rather, the requirements of Section 10-22 are not broad and general "goals," but rather specific standards, requirements and criteria of the ordinance which simply do not lend

themselves to more precise, quantitative measures. Moreover, said requirements and criteria are sufficiently specific and fact-based to guard against an arbitrary and capricious determination that *any* proposed landfill violates Section 10-22.

17. Respondents also argued that Section 10-22 was irrelevant to the consistency determination because DHEC's only charge was to review the permit application to ensure consistency with the ZLDR. Respondents base this argument on the provision in Judge Anderson's Order that "this case is remanded for review in accordance with the ZLDR" and S.C. Code Regs. 61-107.19, Part I (D)(1)(b), which provides that consistency determinations made prior to the effective date of the new regulations shall remain applicable upon adoption of the new regulations.

18. I conclude that, pursuant to the Act and its implementing regulations, DHEC may only issue permits that are consistent with local law (zoning or otherwise) and that all other applicable substantive and procedural requirements of the Act and the regulations must be complied with anytime DHEC issues a permit. S.C. Code Ann. § 44-96-290(A), (B) and (F). Therefore, when considering issuance of a permit, on remand or otherwise, DHEC must make sure that the proposed permit complies with the law in all respects.

19. Neither DHEC's permit review nor the scope of review of this Court is confined to an analysis of whether DHEC properly reviewed the ZLDR. Rather, as *de novo* fact finder, this Court's role is to determine whether DHEC granted the Second Permit Modification in compliance with *all* applicable laws. E.g. Brown, 348 S.C. at 520, 560 S.E.2d at 417. This determination includes compliance with both S.C. Code Ann. § 44-96-290(F) and S.C. Code Regs. 61-107.19.

20. Respondents are correct that S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that consistency determinations, pursuant to S.C. Code Ann. § 44-96-290(F), previously made under the old regulations "remain applicable" for permits issued under the new regulations. However, there is no evidence in the record that DHEC ever performed the consistency determination with respect to Section 10-22 and the ZLDR (specifically, the vegetative buffering regulations) at that time. The permit file of DHEC the parties stipulated into evidence does not disclose a written determination of compliance with this regulation.

21. Additionally, when the First Permit Modification was vacated by Order of this Court in 2009 after the new regulations had taken effect, DHEC's prior consistency

determination no longer remained applicable because it had been vacated. This required DHEC to again perform a consistency determination, and in so doing, ensure that upon reissuance of the permit, the permitted activity was consistent in all respects with the applicable local zoning and land use ordinances and other applicable law.

VEGETATIVE BUFFER REQUIREMENTS (CHARLESTON COUNTY ZLDRs)

22. As mentioned above, S.C. Code Ann. § 44-96-290(F) requires permits issued by DHEC to be consistent with local zoning and land use ordinances. In this case, the Second Permit Modification constitutes a modification to a non-residential site, thereby triggering the County's landscaping, screening, and buffering regulations contained in Article 9.5 of the ZLDRs. These regulations, as applied, require a one hundred (100) foot vegetative buffer between the Class II Landfill and Petitioner's property. Based upon this finding, the Second Permit Modification is not consistent with the County's vegetative and landscaping standards because no landscaping plan or other documentation demonstrating compliance was made part of the permit application or the Second Permit Modification. Rather, only a one hundred (100) foot setback from the Landfill property line is indicated on the plans submitted with the application; however, this setback alone is insufficient to establish consistency because it neither shows nor requires the vegetative screen required by local zoning regulations.

23. The one hundred (100) foot setback depicted in the County's application reflects a DHEC regulatory requirement separate and apart from the County's landscaping and buffer regulations. S.C. Code Regs. 61-107.19, Part IV(B)(1)(e). The 100 foot setback is a DHEC siting requirement for any landfill of this type, no matter what the local ordinances require.

24. Respondent argues that the language "as determined by the Planning Director" in Article 9.5.1 of the ZLDR means the requirement of vegetative buffering can be waived by the Planning Director. However, neither the application nor DHEC's file include any demonstration of authority or proof that the buffer requirements had been or would be waived by the Planning Director.

25. Because the Second Permit Modification is not compliant with local zoning and land use regulations, as it relates to the County's vegetative buffering regulations, DHEC erred in granting the Second Permit Modification. S.C. Code Ann. § 44-96-290(F); Southeastern Resource Recovery, Inc. v. S.C. Dep't. of Health and Envtl. Control, 358 S.C. at 407-08, 595 S.E.2d at 471.

SETBACK REQUIREMENT (SOLID WASTE POLICY AND MANAGEMENT ACT)

26. No person may initiate the construction or expansion of a solid waste management facility except in accordance with the requirements established by DHEC pursuant to the Act. S.C. Code Ann. § 44-96-290(B).

27. S.C. Code Regs. 61-107.19, Part IV(A) requires that the siting, design, construction, operation, and closure activities of Class II Landfills shall conform to the standards set forth in Part IV.

28. S.C. Code Regs. 61-107.19, Part IV(B)(1)(a) imposes the following mandatory setback from adjoining properties: "The boundary of the fill area shall not be located within 1,000 feet of any residence, school, day-care center, church, hospital, or publically owned recreational park area." (Emphasis added).

29. Respondents are correct that S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that certain DHEC regulatory compliance determinations, specifically pursuant to S.C. Code Regs. 61-107.19, Part IV(B)(1)(a), previously made under the old regulations "remain applicable" for permits issued under the new regulations. However, there is no evidence in the record that DHEC ever performed a regulatory compliance determination with respect to its own 1,000 foot setback requirement at that time. The permit file of DHEC the parties stipulated into evidence does not disclose a written determination of compliance with this regulation.

30. What is meant by "residence" for purposes of measuring the minimum regulatory buffer is neither defined by S.C. Code Regs. 61-107.19, Part IV, nor elsewhere in the regulations.

31. Petitioner argues that the 1,000 foot setback applies to residences that are planned and shown on an approved site plan. The Respondents argue that the setback applies only to fully constructed and occupied residential dwellings.

32. The rules of statutory construction apply to regulations. Converse Power Corp. v. S.C. Dep't. of Health and Envtl. Control, 350 S.C. 39, 564 S.E.2d 341 (Ct. App. 2002). In construing statutory language, the statute must be read as a whole and sections which are part of the same general statutory law must be construed together and each one given effect. Jackson v. Charleston County School Dist., 316 S.C. 177, 181, 447 S.E.2d 859, 861 (1994). Moreover, the true guide to statutory construction is not the phraseology of an isolated section or provision, but the language of the statute as a whole considered in light of its manifest purpose. Id., citing

Browning v. Hartvigsen, 307 S.C. 122, 125, 414 S.E.2d 115, 117 (1992) ("[A] statute as a whole must receive practical, reasonable, and fair interpretation consonant with the purpose, design, and policy of lawmakers. The real purpose and intent of the lawmakers will prevail over the literal import of particular words.").

33. The statute must be read in a sense that harmonizes with its subject matter and accords with its general purpose. Mun. Ass'n of S.C. v. AT&T Commc'ns of S. States, Inc., 361 S.C. 576, 580, 606 S.E.2d 468, 470 (2004). An ambiguity in a statute should be resolved in favor of a just, beneficial, and equitable operation of the law. State v. Hudson, 336 S.C. 237, 247, 519 S.E.2d 577, 582 (Ct. App. 1999). The goal of statutory construction is to harmonize statutes whenever possible and to prevent an interpretation that would lead to a result that is plainly absurd. Clemson Univ. v. Speth, 344 S.C. 310, 313, 543 S.E.2d 572, 573 (Ct. App. 2001). Courts will reject statutory interpretations that lead to absurd results clearly unintended. S.C. Coastal Conservation League v. S.C. Dep't. of Health and Envtl. Control, 380 S.C 349, 369, 669 S.E.2d 899, 909 (Ct. App. 2008).

34. Regulations are construed using the same canons of construction as statutes. S.C. Dep't of Rev. v. Blue Moon of Newberry, Inc., 397 S.C. 256, 261, 725 S.E.2d 480, 483 (2012); Murphy v. S.C. Dep't of Health and Envtl. Control, 396 S.C. 633, 639, 723 S.E.2d 191, 195 (2012).

35. The purpose of the regulations relevant to this case is to establish a setback distance to protect residences, schools, hospitals, and publicly owned parks from the obvious, adverse effects of landfills on surrounding property. Moreover, the purposes and findings of the Act express the importance of, among other things, preserving and protecting public health and coordinating landfill planning between state and local government. These purposes would be considerably undermined if "residence" was interpreted in a way that effectively eliminates this basic protection for property located next to landfills.

36. Under the Respondents' interpretation, if the permit applicant to DHEC can "win the race" – that is, succeed in obtaining a permit before a planned house, school, hospital, or park is finished with construction - these neighbors will be ignored for the purposes of S.C. Code Regs. 61-107.19, Part IV(B)(1)(a). The logical extension of the Respondents' argument is that any planned "residence" – no matter how far along the development or construction process – must be ignored. And since many of these ignored, planned developments are likely to

ultimately be constructed and occupied after the permit has been granted, under Respondents' interpretation, they will end up being located within 1,000 feet of the Class II Landfill – a result the regulations seeks to avoid.

37. Respondents' position that no unconstructed or incomplete residences (lacking a certificate of occupancy) should ever be considered regardless of the circumstances, including the circumstances in this case, conflicts with the legislative intent and produces an absurd result. Under this interpretation, the necessity of having a CO for there to be a "residence" under the regulation would mean that DHEC must continuously monitor (up to the minute before making its consistency determination) the activities of local building departments to determine when and if a CO has been issued. Additionally, should a CO be granted for a residence adjacent to the proposed landfill during the permitting process, this sort of "springing" residence could essentially stop a permit in its tracks. This narrow interpretation could not have been intended by the legislature because it creates extreme administrative difficulty for DHEC and the potential for unforeseen, yet easily avoidable, expenses and problems for all parties.

38. The Court rejects the Respondents' argument that this Court must afford its staff's interpretation of "residence" deference. DHEC staff's interpretation of the regulation is not entitled to deference because only the interpretation of DHEC's Board is entitled to deference by this Court. S.C. Coastal Conservation League, 363 S.C. at 75, 610 S.E.2d at 486; Waste Management of the Carolinas, Inc., 2008 WL 4659522 at 11 (holding that deference is only due to the construction or determination of a statute or regulation when the DHEC Board formally adopts such construction).

39. Respondents point to a case recently decided by the South Carolina Supreme Court to suggest that DHEC Staff's regulatory interpretations of undefined terms and phrases are entitled deference. In Murphy v. South Carolina Department of Health and Environmental Control, 396 S.C. 633, 723 S.E.2d 191 (2012), the Court relied on staff's interpretation of "vicinity of the project," finding the interpretation to be "both reasonable and consistent with the plain language of the regulation." Murphy, 396 S.C. at 640-41, 723 S.E.2d at 195.

40. However, Murphy is distinguishable from this case. Unlike the staff member's interpretation of the regulation applicable in Murphy, DHEC staff's interpretation of "residence" in this case is neither reasonable nor consistent with S.C. Code Regs. 61-107.19.

ORDER

Accordingly, based on the foregoing, **IT IS HEREBY ORDERED** that DHEC'S decision on the Second Modified Permit (DHEC #101001-1201) is **REVERSED** and the Second Modified Permit is hereby **VACATED**.

IT IS FURTHER ORDERED that should the County wish to continue pursuing a Class II Landfill expansion permit, an entirely new and updated permit application must be filed, given the long period of time between this Order and the County's initial application in 2007, the rapid changes in residential development in the surrounding area since that time, the repeal and replacement of the governing regulation, and the outdated materials on which the permit relies including, but not limited to, the vicinity map from 2001.

IT IS FURTHER ORDERED that any arguments of the parties not specifically addressed herein are hereby deemed to be denied.

AND IT IS SO ORDERED.

SHIRLEY C. ROBINSON
Administrative Law Judge

March 19th, 2013
Columbia, South Carolina

CERTIFICATE OF SERVICE
This is to certify that the undersigned has this date served this order in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid, or in the interagency Mail Service addressed to the party(ies) or their attorney(s).
This 19 day of March 2013
By: Judge Law Clerk

FILED
MAY 08 2013
SC ADMIN. LAW COURT

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

Grand Bees Development, LLC, Petitioner, vs. South Carolina Department of Health and Environmental Control and County of Charleston, Respondents.	Docket No. 11-ALJ-07-0556-CC **ORDER DENYING RESPONDENTS MOTION FOR RECONSIDERATION**

This matter is before the South Carolina Administrative Law Court ("Court" or "ALC") as a result of the Request for Contested Case Hearing filed with the Court by Grand Bees Development, LLC ("Petitioner") on November 2, 2011. Petitioner requested an evidentiary hearing to advance its opposition to the modified permit issued by the South Carolina Department of Health and Environmental Control ("DHEC") to Charleston County ("County") for the expansion of the Class II Landfill that is part of the County's Bees Ferry Landfill.

An evidentiary hearing was conducted by this Court on March 20, 2012, and on March 19, 2013, the Court issued a Final Order and Decision vacating the modified permit, and additionally requiring the County to file a new and updated application with DHEC if the County intended to continue pursuing a permit for the expansion of the Bees Ferry Landfill.

On March 29, 2013, the County and DHEC filed Motions requesting that the Court reconsider its final decision. The Petitioner filed an opposition to the County's Motion on April 5, 2013, and an opposition to DHEC's Motion on April 8, 2013.

Following review of the arguments advanced by the Respondents, as well as Petitioner's opposing arguments, the Court finds that the Motions should be denied. The final Order issued by this Court thoroughly addressed the issues presented, and the Court is not persuaded by Respondents' arguments to change its analysis of the issues or final ruling on the merits.

THEREFORE, IT IS HEREBY ORDERED that the Motions for Reconsideration filed by Respondents, County of Charleston and South Carolina Department of Health and Environmental Control, shall be, and hereby are, **DENIED**.

AND IT IS SO ORDERED.

SHIRLEY C. ROBINSON
Administrative Law Judge

May 8, 2013
Columbia, South Carolina

CERTIFICATE OF SERVICE
This is to certify that the undersigned has this date served this order in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid, or in the interagency Mail Service addressed to the party(ies) or their attorney(s).

This 8 day of May 2013

By: Judicial Law Clerk

BERNARD E. FERRARA, JR.
CHIEF DEPUTY COUNTY ATTORNEY

CHARLESTON COUNTY

SOUTH CAROLINA

CHARLESTON COUNTY ATTORNEY'S OFFICE
Lonnie Hamilton, III Public Services Building
4045 Bridge View Drive
North Charleston, South Carolina 29405-7464
Telephone: 843.958.4010
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March 29, 2013

The Honorable Shirley C. Robinson
South Carolina Administrative Law Court
Edgar A. Brown Building
1205 Pendleton Street, Suite 224
Columbia, South Carolina 29201

Re: Grand Bees Development, LLC v. South Carolina Department of Health and Environmental Control and County of Charleston
Docket No. 11-ALJ-07-0556-CC

Dear Judge Robinson:

Enclosed please find for filing the original and a copy of the Notice of Motion and Motion for Reconsideration of Respondent County of Charleston along with the Certificate of Service. Kindly file the originals and return the date-stamped copies to me in the enclosed envelope.

Should you have any questions or need additional information, please do not hesitate to contact me.

Thank you for your courtesies in this matter.

Sincerely,

CHARLESTON COUNTY ATTORNEY'S OFFICE

Bernard E. Ferrara, Jr.

BEFJR/jd
Enclosures
cc: Etta Williams Linnen, Esquire
Jamie A. Khan Esquire
Ross A. Appel, Esquire
G. Trenholm Walker, Esquire

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

Grand Bees Development, LLC, Petitioner, vs. South Carolina Department of Health and Environmental Control and County of Charleston, Respondents.	Docket No. 11-ALJ-07-0556-CC **NOTICE OF MOTION AND MOTION FOR RECONSIDERATION OF RESPONDENT COUNTY OF CHARLESTON**

TO: THE HONORABLE SHIRLEY C. ROBINSON; PETITIONER GRAND BEES DEVELOPMENT, LLC AND G. TRENHOLM WALKER, ESQUIRE, JAMIE A. KHAN, ESQUIRE, AND ROSS A. APPEL, ESQUIRE, ATTORNEYS FOR PETITIONER; AND RESPONDENT SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL AND ETTA WILLIAMS LINNEN, ESQUIRE, ATTORNEY FOR RESPONDENT

Respondent County of Charleston moves before the Administrative Law Judge Shirley C. Robinson of the South Carolina Administrative Law Court for reconsideration of her Final Order and Decision filed on March 19, 2013, to alter or amend the Final Order and Decision pursuant to Rule 29(D) of the Rules of Procedure for the Administrative Law Court and Rule 59 of the South Carolina Rules of Civil Procedure. In support of this motion, the County of Charleston would show that the Court's findings of fact and conclusions of law misapply and/or misapprehend the applicable facts and law based on the following grounds:

I. CONSISTENCY WITH LOCAL LAND USE ORDINANCES.

This Court's "Consistency with Local Land Use Ordinances" determination misapplies S.C. Code Ann. § 44-96-290(F) and the South Carolina Supreme Court's decision in ***Southeast Resource Recovery, Inc.*** because it does not find that the Second Permit Modification (C&D Permit) is inconsistent with Charleston County Ordinance Section 10-22, which is a prerequisite for denying

the County's permit modification. Rather, this Court found that "DHEC's failure to review Section 10-22 is significant. . . . It is apparent in this instance that DHEC's consistency determination is materially incomplete and, therefore, facially invalid. As a result, DHEC violated the applicable law in granting the Second Permit Modification." (Final Order and Decision 13.) The Court's 'failure to review standard' has not been established in the Act or in case law. The South Carolina Solid Waste Policy and Management Act and the ***Southeast Resource Recovery, Inc.*** decision do not require DHEC to "consult all applicable land use ordinances . . . to fulfill the consistency requirement of S.C. Code Ann. § 44-96-290(F)." Instead, South Carolina law prohibits expansions that are inconsistent with local ordinances. Therefore, the failure to review or consider a local ordinance on its face does not defeat the consistency requirement found in South Carolina law.

DHEC is charged with determining if a proposed expansion is "consistent with local zoning, land use, and other applicable local ordinances, if any." S.C. Code Ann. § 44-96-290(F). DHEC made a finding that the C&D Permit was consistent with local zoning, land use, and other applicable local ordinances, if any. Its failure to review Section 10-22 before or after its consistency decision does not alter whether or not the C&D Permit is consistent with Charleston County ordinances. The standard in Section 10-22 is not new – it is embodied in the Act, the Regulations, and the ZLDR. It did not alter or add new criterion. This Court's application of S.C. Code Ann. § 44-96-290(F) and the ***Southeast Resource Recovery, Inc.*** decision imposes a standard not found in South Carolina law.

The County also asks this Court to reconsider its finding that the language of Section 10-22 is specific. The Court compared the language of Section 10-22 with the general language of the statement of goals in Newberry County's ordinance in ***Southeast Resource Recovery, Inc.*** and

decided the Charleston County ordinance language was not the sort of broad, general language of Newberry County's ordinance.

The Court concludes the requirements of Section 10-22 are "specific standards, requirements and criteria" of the ordinance which simply do not lend themselves to more precise, quantitative measures. However, Section 10-22 contains no specific standards, requirements and criteria for DHEC to measure precisely and quantitatively how a landfill conforms with the surrounding environment and future development of the area. If the requirements of the language are specific standards, specific requirements and specific criteria, what are those standards, what are those requirements, and what are those criteria? Where are the standards, where are the requirements, and where are the criteria? How are the standards applied, how are the requirements applied, and how are the criteria applied?

Section 10-22 provides:

> All collectors shall dispose of all solid waste collected at an approved facility in a sanitary manner. A properly operated sanitary landfill shall be considered acceptable to meeting this requirement and shall meet the following minimum standards:
>
> ...
>
> (2) Site location. The disposal shall:
>
> ...
>
> d. Conform with the surrounding environment; and
>
> e. Conform with future development of the area.
>
> ....

Section 10-22 provides that all collectors shall dispose of solid waste collected at an approved facility in a sanitary manner. Further, it states that a properly operated sanitary landfill shall be considered acceptable in meeting this requirement and shall meet some minimum standards. The minimum standards for site location include that the disposal conform with the surrounding environment and future development of the area. Those standards are silent on any specific standards, requirements, and criteria to measure conformity. The terms "conform with,"

"surrounding environment," "future development," and "of the area" are all subjective. Each potentially means something different to the Court, Charleston County, DHEC and Grand Bees. Without more specificity, those standards are immeasurable and lack precision upon application.

The Court concludes that consideration of Section 10-22 would have materially influenced DHEC's permitting decision because of "future development in the area," including, but not limited to, Petitioner's development. Limited evidence was submitted demonstrating future development in the area. The Court ignores the testimony of Petitioner's expert that the City of Charleston's intention behind planned unit developments is to ensure compatibility of developments with surrounding areas. (Trial Tr. 138:9-22.) The testimony was given in the context of the expert's review of the City's ordinances in preparing Petitioner's application for a planned unit development for submittal to the City. The Court ignores the expert's testimony that City's criteria for approval speaks to zoning for adjacent undeveloped areas and their uses and looks at what is going on with neighboring properties. (Trial Tr. 140:1-21.) The City approved Petitioner's application and amendments for a planned unit development after taking those criteria into consideration. The criteria the City considered are specific – it looked at undeveloped areas, their uses, and those of neighboring properties.

II. VEGETATIVE BUFFER REQUIREMENTS (CHARLESTON COUNTY ZLDR).

This Court's conclusion that DHEC erred in granting the Second Permit Modification because it did not comply with the County's vegetative buffer regulations expands the application of ZLDR Art. 9.5, which circumvents the legislative intent of Charleston County. Section 9.5.1 is titled **Applicability** and provides when modifications are being made to an existing non-residential site, the standards of this Article **shall apply to those portions** of the subject landfill parcel that are directly affected by the proposed improvements, **as determined**

by the Planning Director. Neither the Planning Director for the County nor DHEC made a determination that buffers are needed for the C&D portion of the Landfill, beyond the 100 foot setback buffer required by Regulation 61-107.19, Part IV(B)(1)(c). The proposed expansion is contained entirely within the existing permitted boundaries and existing buffer zones for the facility. This is shown on Petitioner's Exhibit No.1. The Plan Sheet G-01 of the application shows that the proposed expansion of area of the C&D portion of the Landfill is a 5.5 acre area that is located interior of the landfill property. The expansion is not along the boundary of Petitioner's property. Instead, it is approximately 1,100 feet away from the boundary of the fill area next to the 100 foot buffer abutting the Grand Bees' property. This is also shown on Petitioner's Exhibit No.1. The Plan Sheet C-04 shows no modification, expansion or addition being made to the boundary of the fill area next to the 100 foot buffer abutting Petitioner's property. The County's ZLDR Ordinance regarding Landscaping, Screening and Buffers does not apply to the Second Permit Modification. It does not apply because the buffer standards in the ZLDR only apply to **portions** of the Landfill property directly affected by the proposed improvement, as determined by the Planning Director, which has not occurred. DHEC's consistency determination cannot be defeated for failure to make a discretionary decision.

III. SETBACK REQUIREMENT (SOUTH CAROLINA SOLID WASTE POLICY AND MANAGEMENT ACT).

This Court should reconsider its finding that what is meant by "residence" for purposes of measuring the minimum regulatory buffer is neither defined by S.C. Regulation 61-107.19, Part IV, "**nor elsewhere in the regulations.**" While an argument can be made that "residence" is not defined for purposes of measuring the minimum regulatory buffer in Regulation 61-107.19, the term is defined in the Regulations. It is defined in Regulation 61-107.18, which precedes the Section (61-107.19) that does not define it.

"Residence" is defined in the context of minimum standards for the off-site treatment of contaminated soil; however, it remains part of the Solid Waste Management Regulations that includes Regulation 61-107.19. Regulation 61-107.18(B)(29) defines "residence" as "any structure, all or part of which is designed or used for human habitation, that has received a final permit for electricity, permanent potable water supply, permanent sewage disposal, and a certificate of occupancy, if required by the local government." Here the planned residences do not physically exist: there is no structure, nor is there any final permit for electricity, permanent potable water supply, permanent sewage disposal, and a certificate of occupancy.

Furthermore, the ALC correctly identifies the rules of statutory construction in interpreting statutory language. The statute must be read as a whole and sections which are part of the same general statutory law must be considered together, with each portion given effect. However, the ALC overlooked the Regulations as a whole and assigned a new meaning to "residence," instead of looking within the text of the Regulations for guidance. The cardinal rule of statutory interpretation is to ascertain and effectuate the legislature's intent. The first inquiry in deciphering the legislature's intent should begin by determining whether the statute's meaning is clear on its face. Legislative intent should be derived primarily from the plain language of the statute. If a court has questions regarding statutory construction and application, the court must always look to legislative intent as determined from the plain language of the statute. The statute's text is the best evidence of legislative intent or will.

The Court did not give deference to DHEC staff's interpretation of the term. Instead, the Court accepted Petitioner's definition of "planned residence," which in effect allows any person or entity to prevent DHEC from permitting a site for a new landfill, or expansion of an existing landfill, if the landfill or expansion is located within 1,000 feet of any "planned residence." This

interpretation creates problematic application of that Regulation by DHEC and potentially serious consequences for South Carolina.

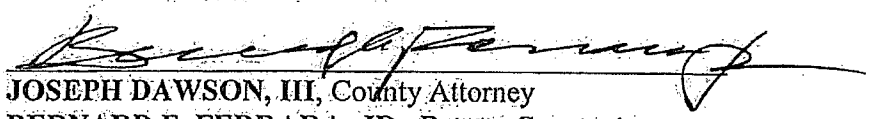
It contradicts the policy and goals of the Solid Waste Policy and Management Act of 1991 and Regulations 61-107 et seq., which is to "protect the public health and safety, protect and preserve the environment of this State, ... require local governments to adequately plan for and provide efficient, environmentally acceptable solid waste management services and programs, ... ensure that solid waste is transported, stored, treated, processed, and disposed of in manner adequate to protect human health, safety, and welfare and the environment,...."

Citing a further maxim of statutory construction, under the plain meaning rule, it is not the court's place to change the meaning of the clear and unambiguous statute. The Court in this instance changed the meaning of the clear and unambiguous Regulation.

Conclusion

The proposed expansion is consistent with adjacent land uses and future land uses. This was determined by the very entity that granted approval of Petitioner's planned unit development. The proposed expansion contains a 100 foot buffer and is, thus, compliant with local zoning, land use, and other applicable ordinances. Given the plain meaning of the term "residence" and the plain language in the S.C. Regulations, as well as DHEC's testimony, the toe of the C&D mound of the Landfill is not located within 1,000 feet of any residence of Petitioner's property. For these reasons, Charleston County respectfully urges the Court to reconsider its decision.

COUNTY OF CHARLESTON



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ATTORNEYS FOR RESPONDENT

Charleston, South Carolina
March 29, 2013

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

Grand Bees Development, LLC, Petitioner, vs. South Carolina Department of Health and Environmental Control and County of Charleston, Respondents.	)	Docket No. 11-ALJ-07-0556-CC **CERTIFICATE OF SERVICE**

I certify that I served a true and correct copy of the **Notice of Motion and Motion for Reconsideration of Respondent County of Charleston** upon Petitioner Grand Bees Development, LLC and Respondent South Carolina Department of Health and Environmental Control by depositing a copy of the same in the United States Mail, postage prepaid, on March 29, 2013, addressed to all counsel of record as follows:

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THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM THE ADMINISTRATIVE LAW COURT

Shirley C. Robinson, Administrative Law Judge

Docket No. 2011-ALJ-07-0556-CC

Grand Bees Development, LLC, ... Respondent,

v.

South Carolina Department of Health and
Environmental Control and County of Charleston,

Of Whom
County of Charleston is . . . . . Appellant.

NOTICE OF APPEAL

Appellant County of Charleston appeals the Final Order and Decision of the Honorable Shirley C. Robinson dated March 19, 2013, a copy of which is attached hereto as Exhibit A. Appellant received written notice of entry of the Final Order and Decision on March 21, 2013.

May 24, 2013

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Exhibit "A"

Final Order and Decision

FILED
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SC ADMIN. LAW COURT

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

Grand Bees Development, LLC, Petitioner, vs. South Carolina Department of Health and Environmental Control and County of Charleston, Respondents.	Docket No. 11-ALJ-07-0556-CC **FINAL ORDER AND DECISION**

APPEARANCES:

For the Petitioner:	G. Trenholm Walker, Esquire Jamie A. Khan, Esquire
For the Respondent SC DHEC:	Etta R. Williams, Esquire
For the Respondent County of Charleston:	Bernard E. Ferrara, Jr., Esquire Joseph Dawson, III, Esquire

This matter comes before the South Carolina Administrative Law Court ("ALC" or "Court") pursuant to S.C. Code Ann. §1-23-600(A) and S.C. Code Ann. §44-1-60(F)(2) upon the Request for a Contested Case Hearing filed by Grand Bees Development, LLC ("Petitioner"). Petitioner contests the September 1, 2011 final agency decision of Respondent South Carolina Department of Health and Environmental Control ("DHEC"), to issue a modified permit to Respondent Charleston County ("County") for the expansion of the Class II Landfill that is part of the County's Bees Ferry Landfill. On September 12, 2011, Petitioner filed a timely request for a Final Review Conference, and on October 13, 2011, the DHEC Board decided not to grant discretionary review. Thereafter, on November 2, 2011, Petitioner filed a Request for Contested Case Hearing with this Court.

In its Request for Contested Case Hearing, Petitioner asserts that the County's proposed expansion of the Class II Landfill violates applicable regulations and statutes and that this Court should vacate the modified permit.

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The Court conducted a hearing on the merits on March 20, 2012, at the Administrative Law Court in Columbia, South Carolina.

FINDINGS OF FACT

Having observed the witnesses and exhibits presented, weighed their credibility, and taking into consideration the burden of persuasion of the parties, I make the following findings of fact by a preponderance of the evidence:

1. Notice of the time, date and nature of the hearing was timely given to all parties.

2. Petitioner is the owner of a tract of land comprised of approximately 311 acres, located off Bees Ferry Road in the City of Charleston, South Carolina (Charleston County TMS# 301-00-00-035) (the "Grand Bees Property"). Petitioner purchased the Grand Bees Property on November 15, 2004.

3. The Grand Bees Property is zoned Planned Unit Development ("PUD") by the City of Charleston ("City") and is designated for residential land use. The Grand Bees Property is part of a larger PUD in the City called Bees Landing, which was first approved by City Council in March of 1993. Also known to the public as Grand Oaks Plantation ("Grand Oaks"), the Bees Landing PUD has been amended numerous times by City Council – most recently on February 14, 2012. At the time of the hearing, there were nine distinct and completed neighborhoods in Grand Oaks totaling approximately 1,500 homes, along with various city parks and other amenities.

4. The Grand Bees Property represents approximately twenty-five percent (25%) of the total land area in Grand Oaks. Under the Bees Landing PUD, the Grand Bees Property is designated for residential development. It is one of the last remaining components of Grand Oaks that is not yet fully built-out.

5. Petitioner has paid its share of dues and assessments of the Master Grand Oaks Association since acquiring the Property in 2004.

6. Various other residential developments are located in the vicinity of Grand Oaks including, but not limited to, The Hunt Club and Long Savannah (residential PUD's in the City of Charleston) located to the west and north of the Grand Bees Property.

7. The County operates the Bees Ferry Landfill (Charleston County TMS# 301-00-00-026) (the "Landfill"), located on Bees Ferry Road in the unincorporated part of the County. Bees Ferry Road abuts Grand Oaks and the Grand Bees Property. The Landfill and the Grand

Bees Property share a common boundary along the Grand Bees Property's southwest property line.

8. Charleston County disposes of various types of waste at the Landfill, and the portion of the Landfill adjacent to the Grand Bees Property is a DHEC Class II Landfill. This landfill had been classified under former DHEC regulations (prior to May 23, 2008) as a construction, demolition, and land clearing debris landfill ("C&D Landfill").

9. The Petitioner is in the business of residential development, and as such, purchases land, plans the residential project, obtains land plan approval, engineers the improvements to the land, obtains other necessary approvals and permits, builds the infrastructure, installs the utilities, subdivides the land into lots, and then sells the residential lots to home builders.

10. Prior to purchasing the Grand Bees Property, Petitioner conducted due diligence that included reviewing the Grand Bees Property's zoning, the C&D Landfill's DHEC Permit ("C&D Permit"), and the County regulations applicable to the Landfill. Petitioner's representatives also met with Charleston County solid waste officials prior to purchasing the Grand Bees Property. At the conclusion of its due diligence, the Petitioner determined that according to the County's zoning ordinances, the County would need to obtain a special exception from the Charleston County Board of Zoning Appeals as a prerequisite to expansion of the C&D mound adjacent to the Grand Bees Property.

11. Under the County's zoning ordinances a special exception requires a public hearing that allows comments from the public. A special exception would also require the County to directly notify adjacent property owners, such as Petitioner.

12. On November 15, 2004, Petitioner closed on the Grand Bees Property for $4,141,518.00.

13. Consistent with its zoning for residential use under the Bees Landing PUD, Petitioner obtained site plan approval from the City for 507 residential units in February 2006. After obtaining site plan approval, Petitioner proceeded to incur extensive engineering costs for the necessary infrastructure improvements to the Grand Bees Property to accomplish the residential development.

14. Taylor Bush, one of Petitioner's principals, testified that his company has so far invested approximately $8,000,000 in the acquisition and development of the Grand Bees

Property.

15. The County has operated the Landfill at its current location since approximately 1977. Pursuant to the S.C. Solid Waste Policy and Management Act of 1991 (the "Act"), the County has operated the C&D/Class II Landfill under DHEC Permit Number 101001-1201 since October 17, 1997.

16. In July 2007, the County applied to DHEC to amend its C&D Permit at the Bees Ferry Landfill, and in November 2007, the County revised its application. The County's application sought to enlarge the vertical height limitation from 74' above mean sea level ("MSL") to 168' MSL and to expand the footprint of the C&D by 5.5 acres. As stated in its application, the increases would expand the C&D Landfill's maximum disposal capacity from approximately 2.5 to 5.4 million cubic yards, more than doubling its size.

17. The vicinity map, included in the County's 2007 permit application as required by regulation, found at Page G-04 of the application, identifies the adjoining Grand Bees Property as zoned PUD with the land use specified as residential. The vicinity map (dated 2004) used in the 2007 application is based on a 2001 aerial photograph.

18. Although at the time of its application the County knew Petitioner was in the process of developing the Grand Bees Property for residential units, the County did not directly notify Petitioner of the County's application to DHEC to expand the size of the C&D Landfill.

19. DHEC granted the modification of DHEC Permit Number 101001-1201 (the "First Permit Modification") on January 17, 2008. The Petitioner learned of the County's application a few days after the First Permit Modification's issuance.

20. Thereafter, Petitioner requested a contested case hearing to challenge the issuance of the First Permit Modification. The Honorable Ralph King Anderson, III conducted a hearing on January 13th and 14th, 2009 (Docket No. 08-ALJ-07-0198-CC). Judge Anderson ultimately ruled that DHEC erred in granting the permit because the County failed to obtain a special exception in accordance with its own zoning ordinances and the Zoning and Land Development Regulations ("ZLDR"). As a result, the modified permit was inconsistent with local zoning, land use, and other applicable regulations in violation of S.C. Code Ann. § 44-96-290(F). By Order dated June 2, 2009, Judge Anderson vacated the First Permit Modification and remanded it to DHEC.

21. After Judge Anderson issued his order vacating the First Permit Modification, the

County amended its ZLDR to eliminate the requirement of a special exception for the expansion of the Bees Ferry Landfill.

22. The County's zoning amendment, eliminating the need for a special exception, was approved in 2010. DHEC considered the previously filed permit application from 2007 to re-issue the permit modification for expansion of the Class II landfill. The County did not submit a new permit application nor did DHEC require one. The County merely provided some additional information, primarily dealing with zoning, to supplement its 2007 application.

23. Since the County's initial 2007 application, the General Assembly substantially revised DHEC's regulations governing solid waste landfills. Specifically, DHEC reviewed the First Permit Modification in 2007 and 2008 under then applicable S.C. Code Regs. 61-107.11. S.C. Code Regs. 61-107.19 repealed and replaced S.C. Code Regs. 61-107.11 on May 23, 2008.

24. Kent Coleman, Director of DHEC's Division of Mining and Solid Waste Management testified that, on remand from this Court, it evaluated the 2007 permit application under the new regulations. Since the new regulations contained new groundwater monitoring regulations, DHEC required the County to supplement its application in this regard. However, DHEC did not otherwise require the County to update its application.

25. Mr. Coleman further testified that in addition to the vicinity map based on the 2001 aerial photograph, DHEC subsequently consulted "numerous aerial photographs throughout the process ... that were more updated through time." However, none of these other aerial photographs are in the record.

26. As for DHEC's consistency determination after the First Permit Modification was vacated, on April 12, 2011, Mary Varga with DHEC sent an internal memorandum with the subject line "Review of Charleston County ZLDR" to Tim Eleazer with DHEC (the "Consistency Memorandum") stating that "[s]taff initiated a review that included the Charleston County's Zoning Ordinance, last amended on December 16, 2010, the Charleston County zoning map, and a letter dated February 3, 2005, from the Charleston County's Planning Department to determine if [the Bees Ferry Class II Landfill Expansion] is consistent with local zoning."

27. The Consistency Memorandum concluded that DHEC "has determined that the proposed expansion is consistent with the Charleston County land-use planning and zoning." However, the Consistency Memorandum does not state that any other local ordinances, including any contained in other chapters of the Charleston County Code of Ordinances, were consulted in

addition to the ZLDR during DHEC's consistency review process. The Consistency Memorandum represents the only written documentation of DHEC's official consistency determination in the record.

28. DHEC approved a draft permit modification on April 18, 2011; and on April 18, 2011, DHEC published public notice of the draft permit modification in *The Post & Courier*, the Charleston daily newspaper. A public hearing on the draft permit modification was held on July 13, 2011. Petitioner's representative along with other individuals from Grand Oaks and the community attended and offered comments.

29. On September 1, 2011, DHEC rendered its final decision on remand and issued a new permit modification of DHEC Permit Number 101001-1201 (the "Second Permit Modification"). The Second Permit Modification authorizes the County to make the same modifications to the Class II Landfill as the First Permit Modification, i.e. increasing the height of the Class II Landfill from 74 feet MSL to 168 feet MSL, increasing the annual disposal limit from 182,000 tons per year to 200,000 tons per year, more than doubling its overall capacity, and expanding the footprint by 5.5 acres. Mr. Coleman approved and signed both the First and Second Permit Modifications.

30. During the hearing, Mr. Coleman testified that DHEC's permitting authority is subject to the requirements of the Act and its implementing regulations, namely S.C. Code Regs. 61-107.19. He further testified that under S.C. Code Ann. § 44-96-290(F) and S.C. Code Regs. 61-107.19, a permit cannot be issued by DHEC unless the expansion allowed by the permit is also consistent with local zoning and land use ordinances.

31. S.C. Code Regs. 61-107.19, Part I (D)(1)(a) requires that prior to the submittal of a permit application for a new or expanded landfill, the applicant must demonstrate, among other things, that the activity is consistent with local zoning, land use, and other applicable ordinances under S.C. Code Ann. § 44-96-290(F). Additionally, S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that consistency determinations made pursuant to Part I (D)(1)(a) "prior to the effective date of this regulation . . . shall remain applicable and become the agency's final determination . . . subject to the appeal provision in Part I (D)(1)(c) . . . ."

32. In his testimony, Mr. Coleman stated that DHEC deemed the consistency requirement of S.C. Code Ann. § 44-96-290(F) satisfied once DHEC learned that the County had amended the ZLDR to eliminate the need for a special exception for expansion of the landfill.

Therefore, DHEC did not consider other applicable County ordinances.

33. Also, during the hearing before this Court, the Petitioner offered into evidence a certified copy of County Ordinance #180, adopted by County Council on March 5, 1974, which is presently codified (with minor typographical modifications) at Section 10-22 of the Charleston County Code of Ordinances (hereinafter, "Section 10-22"). Counsel for both the County and DHEC stipulated that Section 10-22 (titled "Disposal Sites and Facilities") was in effect when the original permit application was filed in 2007 and when the Second Permit Modification was issued. Moreover, wording in this Section shows that it applies to "[a]ll owners or operators of solid waste disposal facilities including governmental units or agencies." The Section also provides that certain site design regulations are triggered "[w]hen a new sanitary landfill is constructed or an existing site is extensively re-designed." (Emphasis added.)

34. The site design regulations include Section 10-22(2)(d), which provides that all disposal sites shall "conform with the surrounding environment." Section 10-22(2)(e) provides that solid waste disposal sites must also "conform with future development of the area." The County never brought Section 10-22 to DHEC's attention. Furthermore, Mr. Coleman testified that DHEC did not consider Section 10-22 when deciding whether to grant the Second Permit Modification and he did not become aware of it until his deposition in preparation for this hearing. There is also no mention of Section 10-22 in the Consistency Memorandum.

35. The Consistency Memorandum does not reference the Charleston County Code of Ordinances – it only references the ZLDR. There is no evidence in the record that Section 10-22 or the County's Code of Ordinances, more generally, was ever reviewed by DHEC to determine whether the requested permit modification was consistent with all applicable local ordinances.

36. According to Mr. Coleman, Section 10-22 was irrelevant to DHEC's consistency determination because its "generalized language is not applicable . . . in the sense that it doesn't change anything and doesn't specify anything about . . . the requirements that the local zoning does not already cover."

37. Petitioner's expert, John S. Lester, P.E. ("Lester") (the President of HLA, Inc., a civil engineering and landscape architecture firm in Charleston), Mr. Bush, and Wallace A. Jack ("Jack") (a board member of the Grand Oaks Boulevard Association), all testified to the rapidly expanding and residential character of the area surrounding the landfill since 2001. These witnesses testified that increasing the maximum height of the Class II Landfill from 74 feet to

168 feet (in addition to the other modifications allowed by the Second Permit Modification) would neither be compatible with nor conform to current and future development in the area. They expressed concerns about noise, dust, aesthetics, and increased traffic from operations associated with the requested expansion of the Class II Landfill. Specifically, Mr. Bush testified that the Second Permit Modification would have a "significant impact" on his ability to develop and market the Grand Bees Property due to the expansion's incompatibility and nonconformance with adjacent residential development.

38. Mr. Lester testified that the 168-foot maximum height of the Class II Landfill, allowable by the Second Permit Modification, would match or exceed many of the tallest structures in Charleston County, including the driving surface of the Arthur Ravenel, Jr. Bridge (the New Cooper River Bridge) as well as what is possibly Charleston's tallest building, the Holiday Inn along the Ashley River. In addition, he testified that based on the to-scale, engineering models his firm had produced, a 168-foot Class II Landfill would be clearly visible over the tree lines and buffers of the surrounding neighborhoods, including both the Grand Bees Property and other parts of the Grand Oaks community.

39. In addition to these models, Petitioner offered two updated aerial photographs of the landfill and its surrounding area, depicting the status of existing and planned residential development as of 2008 and 2012. These developments include, but are not limited to, the Grand Bees Property, the several other neighborhoods in Grand Oaks, and other residential developments adjacent to the Landfill. The updated aerials show vast changes in the surrounding areas since 2001.

40. After Judge Anderson vacated the First Permit Modification in 2009, DHEC never required and the County never provided a vicinity map with aerial photography updated from 2001. The vicinity map DHEC relied on in making its permitting decision does not reflect the substantial growth in residential development the area has experienced over the last ten years and will experience in the coming years. In contrast, the updated aerials depict the state of existing and future residential development as of 2008 and 2012.

41. Aside from Section 10-22 of the Charleston County Code of Ordinances, Chapter 9 of the ZLDR contains Development Standards which are generally applicable to new and expanding development. These Standards are intended "to protect the public health, safety, and general welfare;" "to promote harmonious and orderly development;" and "to foster civic beauty

by improving the appearance, character and economic value of civic, commercial and industrial development within the unincorporated areas." Article 9.1, ZLDR. These Development Standards are also designed to: "Implement the use of vegetated buffers in order to mitigate the effects of incompatible adjacent uses, to provide transition between neighboring properties and streets, to moderate climatic effects, and to minimize noise and glare." Article 9.1, ZLDR.

42. The landscaping, screening, and buffering regulations provide that "[w]hen modifications or additions are being made to an existing non-residential building or site, the standards of this Article shall apply to those portions of the subject parcel that are directly affected by the proposed improvements, as determined by the Planning Director . . . ." Article 9.5, ZLDR. In essence, the landscaping, screening, and buffering requirements are applicable to modifications of non-residential sites in Charleston County, including "waste-related uses." Article 9.5.1 and Article 9.5.4(A)(4), ZLDR.

43. In this instance, the County's regulations require a one hundred (100) foot vegetative buffer between the Class II Landfill and Petitioner's property, specifically nine (9) canopy trees, eleven (11) understory trees and fifty (50) shrubs per one hundred (100) feet of linear buffer along the property line. However, the approved Second Permit Modification drawings contain no reference to the County's landscaping regulations, no description or requirement of the vegetation that would be required to be planted, and no planting or landscaping plan.

44. The Petitioner's witness, Mr. Lester, testified that in practice, landscaping plans are submitted and required by local government to prove compliance with buffer and landscaping regulations as a precondition to land development. However, no landscaping plan or similar documentation was included either in the County's 2007 application, as supplemented, or the Second Permit Modification itself.

45. Mr. Lester further testified that in 2009 and 2012, his firm physically inspected the one hundred (100) foot space between the Class II Landfill and Petitioner's Property, and observed that it does not meet the specific requirements of the ZLDR, by not containing the vegetative buffering requirements. Additionally, the 100 foot space is utilized as an access road by the County around the Landfill.

46. Beyond consistency with the ZLDR and the County's Code of Ordinances, under S.C. Code Regs. 61-107.19 Part IV (B)(1)(a) a landfill's fill area boundary may not be located

within one thousand (1,000) feet of any "residence." As previously mentioned, the City approved the Grand Oaks PUD and the Petitioner's site plan for residential development several years before the County applied to DHEC for the expansion permit for its Class II landfill.

47. According to testimony provided by Mr. Bush, the planned development for the Grand Bees Property consists of various engineering phases, including Phase 7 adjacent to the Class II Landfill's common boundary. Mr. Bush further testified that Phase 7 has been both permitted for residential development by the City and engineered for water, sewer, storm system, and roadway infrastructure improvements.

48. Mr. Lester surveyed the common boundary between the Grand Bees Property and the Class II Landfill. He testified to the measurements performed, computer aided design ("CAD") plats produced, and the location of approximately 130 approved and planned residential lots on the Grand Bees Property located within 1,000 feet of the fill area boundary of the Class II Landfill Permit. Mr. Lester's analysis was based on the residential development approvals as well as Phase 7's engineering.

49. As set forth below, S.C. Code Regs. 61-107.19 neither defines "residence" nor provides a test for determining when a "residence" will be considered to be within 1,000 feet of a Class II Landfill. Additionally, the DHEC Board has no reported decision that interprets how the Department defines "residence" for purposes of its Solid Waste Act and the regulations propounded thereunder.

50. The Department's permitting decision in this case was based on the dictionary definition of "residence" that personnel interprets to mean a structure where someone lives or could live, as evidenced by a certificate of occupancy ("CO") granted by local government authorities. According to the Department's witness, Mr. Coleman, if a CO was granted within 1,000 feet of a residence "like a day prior to [a permit being issued], we would have to consider that in our decision . . . ."

51. The parties do not dispute that "there are proposed and planned residences . . . at this property."

CONCLUSIONS OF LAW

Based on the foregoing, I make the following legal conclusions:

1. The Administrative Law Court has jurisdiction over this contested case matter pursuant to S.C. Code Ann. §§ 1-23-600(A) and 44-1-60(F)(2) (Supp. 2012).

2. In contested case hearings, the Administrative Law Judge is the fact finder and makes a *de novo* determination regarding the matters at issue. Brown v. S.C. Dep't. of Health and Envtl. Control, 348 S.C. 507, 520, 560 S.E.2d 410, 417 (2002).

3. The Petitioner, as the party challenging the issuance of the Permit to the County, bears the burden of proving, by a preponderance of the evidence, that the Permit issued by DHEC to the County did not meet the requirements of S.C. Code Ann. § 44-96-10 *et seq.* and S.C. Code Regs. 61-107. See Leventis v. S.C. Dep't. of Health and Envtl. Control, 340 S.C. 118, 132, 530 S.E.2d 643, 651 (Ct. App. 2000).

CONSISTENCY WITH LOCAL LAND USE ORDINANCES

4. S.C. Code Ann. § 44-96-290(F), contained in the Act, provides that: "[n]o permit to construct a new solid waste management facility or to expand an existing solid waste management facility within a county or municipality may be issued by the department unless the proposed facility or expansion is consistent with local zoning, land use, and other applicable local ordinances, if any."

5. Compliance with local zoning, land use, and other applicable local ordinances is a condition precedent to DHEC issuing a permit for an expansion of an existing solid waste facility. Southeast Resource Recovery, Inc. v. S.C. Dep't. of Health and Envtl. Control, 358 S.C. 402, 407-08, 595 S.E.2d 468, 471 (2004).

6. Our courts have held that "consistent with" means "comply with" in this context, and the two terms are regularly used interchangeably when discussing the requirements of S.C. Code Ann. § 44-96-290(F). See Southeast Resource Recovery, Inc., 358 S.C. at 408, 595 S.E.2d at 471.

7. A consistency determination by a county applicant does not control; the law requires that the permitting agency determine consistency for purposes of a state statute that requires consistency as a condition of permitting. Southeast Resource Recovery, Inc., 358 S.C. at 407-08, 595 S.E.2d at 471 ("[a]lthough Section 44-96-290(F) requires a proposed facility comply with local standards, it does not designate the county as the final arbiter on whether the proposed facility complies with its local zoning, land use, and other ordinances."). Clearly, DHEC is prohibited from delegating the consistency determination to local governments through letters of consistency or other means. Id. DHEC has the ultimate responsibility to ensure that it surveys and considers all local zoning, land use, and other applicable ordinances. Id.

8. The ALC, as *de novo* fact finder in contested case hearings, similarly must determine whether DHEC made a proper consistency determination. To decide whether DHEC made a proper consistency determination, this Court must determine whether DHEC reviewed all applicable local ordinances and whether the permit, as granted, is consistent with these ordinances. S.C. Code Ann. § 44-96-290(F); See Southeast Resource Recovery, Inc. v. South Carolina Dept. of Health and Environmental Control, 358 S.C. 402, 595 S.E.2d 468 (2004).

9. As a matter of law, Section 10-22 is an applicable local land use ordinance under S.C. Code Ann. § 44-96-290(F). It specifically governs solid waste disposal facilities (both new and expanded), including those owned and operated by governmental entities, including the County.

10. Section 10-22(1) applies various rules and regulations to "[a]ll owners or operators of solid waste disposal facilities including governmental units or agencies" (emphasis added). Additionally, Section 10-22(1)(c) provides that these site design regulations are triggered "[w]hen a new sanitary landfill is constructed or an existing site is extensively re-designed" (emphasis added). Among other things, Section 10-22(b) provides that the disposal site shall "conform with the surrounding environment" and "conform with future development of the area."

11. According to the South Carolina Supreme Court, zoning ordinances are not the only means by which local governments can regulate land use. Greenville County v. Kenwood Enterprises, 353 S.C. 157, 165, 577 S.E.2d 428, 432 (2003), overruled on other grounds by Byrd v. City of Hartsville, 365 S.C. 650, 620 S.E.2d 76 (2005) ("[W]hile the Comprehensive Planning Act governs zoning, it simply does not evince a legislative intent to completely prohibit any other local enactments from touching upon zoning or land use."). The terms of S.C. Code Ann. § 44-96-290(F) acknowledge this distinction as well by expressly differentiating between zoning and general land use ordinances: "No permit . . . may be issued by the department unless the proposed facility or expansion is consistent with local zoning, land use, and other applicable local ordinances . . . ." (emphasis added).

12. In this case, DHEC was required to consult *all* applicable land use ordinances in the Code, especially those specifically dealing with solid waste facilities, in addition to the ZLDR in order to fulfill the consistency requirement of S.C. Code Ann. § 44-96-290(F). However, DHEC never considered Section 10-22 in its consistency review.

13. DHEC's failure to review Section 10-22 is significant. Unlike other County ordinances including the ZLDR, Section 10-22 requires consideration of conformity with the surrounding environment and *future* development of the area. Given the evidence of substantial existing residential development in the area, and future development in the area, including, but not limited to Petitioner's development on the Grand Bees Property, consideration of Section 10-22 would have materially influenced DHEC's permitting decision. It is apparent in this instance that DHEC's consistency determination is materially incomplete and, therefore, facially invalid. As a result, DHEC violated the applicable law in granting the Second Permit Modification. S.C. Code Ann. § 44-96-290(F); Southeast Resource Recovery, Inc., 358 S.C. at 407-08, 595 S.E.2d at 471.

14. The Court rejects Respondents' argument that Section 10-22 is less specific and more vague than the ZLDR and therefore superseded by the ZLDR, making Section 10-22 irrelevant for the purposes of consistency review. It is the conclusion of this Court that Section 10-22 is a valid land use ordinance that exists in addition to the ZLDR. Respondents have presented no authority to support the view that the ZLDR preempts, for the purposes of DHEC's consistency analysis, an otherwise applicable valid land use ordinance simply due to the latter's being more specific. See e.g., Mikell v. County of Charleston, 386 S.C. 153, 687 S.E.2d 326 (2009) ("Where two ordinance provisions deal with the same issue, one in a general and the other in a more specific and definite manner, the more specific prevails.").

15. Respondents also argue that "broad, general statement of goals" cannot be relied upon in a consistency determination. Southeast Resource Recovery, Inc., 358 S.C. at 409, 595 S.E.2d at 472 (holding goals "to preserve, protect and enhance the environmental quality of Newberry County" is a broad, general statement of goals). The Court in Southeast Resource Recovery, Inc. noted that "[t]o hold otherwise would invite a reviewing court to conclude, on an arbitrary and capricious basis, any proposed landfill facility falls within the ambit of such general language." Id.

16. I conclude that the critical language of Section 10-22, namely "conform with the surrounding environment" and "conform with future development of the area," are not the sort of "broad, general statements of goals" that worried the Supreme Court in Southeast Resource Recovery, Inc. Rather, the requirements of Section 10-22 are not broad and general "goals," but rather specific standards, requirements and criteria of the ordinance which simply do not lend

themselves to more precise, quantitative measures. Moreover, said requirements and criteria are sufficiently specific and fact-based to guard against an arbitrary and capricious determination that *any* proposed landfill violates Section 10-22.

17. Respondents also argued that Section 10-22 was irrelevant to the consistency determination because DHEC's only charge was to review the permit application to ensure consistency with the ZLDR. Respondents base this argument on the provision in Judge Anderson's Order that "this case is remanded for review in accordance with the ZLDR" and S.C. Code Regs. 61-107.19, Part I (D)(1)(b), which provides that consistency determinations made prior to the effective date of the new regulations shall remain applicable upon adoption of the new regulations.

18. I conclude that, pursuant to the Act and its implementing regulations, DHEC may only issue permits that are consistent with local law (zoning or otherwise) and that all other applicable substantive and procedural requirements of the Act and the regulations must be complied with anytime DHEC issues a permit. S.C. Code Ann. § 44-96-290(A), (B) and (F). Therefore, when considering issuance of a permit, on remand or otherwise, DHEC must make sure that the proposed permit complies with the law in all respects.

19. Neither DHEC's permit review nor the scope of review of this Court is confined to an analysis of whether DHEC properly reviewed the ZLDR. Rather, as *de novo* fact finder, this Court's role is to determine whether DHEC granted the Second Permit Modification in compliance with *all* applicable laws. E.g. Brown, 348 S.C. at 520, 560 S.E.2d at 417. This determination includes compliance with both S.C. Code Ann. § 44-96-290(F) and S.C. Code Regs. 61-107.19.

20. Respondents are correct that S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that consistency determinations, pursuant to S.C. Code Ann. § 44-96-290(F), previously made under the old regulations "remain applicable" for permits issued under the new regulations. However, there is no evidence in the record that DHEC ever performed the consistency determination with respect to Section 10-22 and the ZLDR (specifically, the vegetative buffering regulations) at that time. The permit file of DHEC the parties stipulated into evidence does not disclose a written determination of compliance with this regulation.

21. Additionally, when the First Permit Modification was vacated by Order of this Court in 2009 after the new regulations had taken effect, DHEC's prior consistency

determination no longer remained applicable because it had been vacated. This required DHEC to again perform a consistency determination, and in so doing, ensure that upon reissuance of the permit, the permitted activity was consistent in all respects with the applicable local zoning and land use ordinances and other applicable law.

VEGETATIVE BUFFER REQUIREMENTS (CHARLESTON COUNTY ZLDRs)

22. As mentioned above, S.C. Code Ann. § 44-96-290(F) requires permits issued by DHEC to be consistent with local zoning and land use ordinances. In this case, the Second Permit Modification constitutes a modification to a non-residential site, thereby triggering the County's landscaping, screening, and buffering regulations contained in Article 9.5 of the ZLDRs. These regulations, as applied, require a one hundred (100) foot vegetative buffer between the Class II Landfill and Petitioner's property. Based upon this finding, the Second Permit Modification is not consistent with the County's vegetative and landscaping standards because no landscaping plan or other documentation demonstrating compliance was made part of the permit application or the Second Permit Modification. Rather, only a one hundred (100) foot setback from the Landfill property line is indicated on the plans submitted with the application; however, this setback alone is insufficient to establish consistency because it neither shows nor requires the vegetative screen required by local zoning regulations.

23. The one hundred (100) foot setback depicted in the County's application reflects a DHEC regulatory requirement separate and apart from the County's landscaping and buffer regulations. S.C. Code Regs. 61-107.19, Part IV(B)(1)(e). The 100 foot setback is a DHEC siting requirement for any landfill of this type, no matter what the local ordinances require.

24. Respondent argues that the language "as determined by the Planning Director" in Article 9.5.1 of the ZLDR means the requirement of vegetative buffering can be waived by the Planning Director. However, neither the application nor DHEC's file include any demonstration of authority or proof that the buffer requirements had been or would be waived by the Planning Director.

25. Because the Second Permit Modification is not compliant with local zoning and land use regulations, as it relates to the County's vegetative buffering regulations, DHEC erred in granting the Second Permit Modification. S.C. Code Ann. § 44-96-290(F); Southeastern Resource Recovery, Inc. v. S.C. Dep't. of Health and Envtl. Control, 358 S.C. at 407-08, 595 S.E.2d at 471.

SETBACK REQUIREMENT (SOLID WASTE POLICY AND MANAGEMENT ACT)

26. No person may initiate the construction or expansion of a solid waste management facility except in accordance with the requirements established by DHEC pursuant to the Act. S.C. Code Ann. § 44-96-290(B).

27. S.C. Code Regs. 61-107.19, Part IV(A) requires that the siting, design, construction, operation, and closure activities of Class II Landfills shall conform to the standards set forth in Part IV.

28. S.C. Code Regs. 61-107.19, Part IV(B)(1)(a) imposes the following mandatory setback from adjoining properties: "The boundary of the fill area shall not be located within 1,000 feet of any residence, school, day-care center, church, hospital, or publically owned recreational park area." (Emphasis added).

29. Respondents are correct that S.C. Code Regs. 61-107.19, Part I (D)(1)(b) provides that certain DHEC regulatory compliance determinations, specifically pursuant to S.C. Code Regs. 61-107.19, Part IV(B)(1)(a), previously made under the old regulations "remain applicable" for permits issued under the new regulations. However, there is no evidence in the record that DHEC ever performed a regulatory compliance determination with respect to its own 1,000 foot setback requirement at that time. The permit file of DHEC the parties stipulated into evidence does not disclose a written determination of compliance with this regulation.

30. What is meant by "residence" for purposes of measuring the minimum regulatory buffer is neither defined by S.C. Code Regs. 61-107.19, Part IV, nor elsewhere in the regulations.

31. Petitioner argues that the 1,000 foot setback applies to residences that are planned and shown on an approved site plan. The Respondents argue that the setback applies only to fully constructed and occupied residential dwellings.

32. The rules of statutory construction apply to regulations. Converse Power Corp. v. S.C. Dep't. of Health and Envtl. Control, 350 S.C. 39, 564 S.E.2d 341 (Ct. App. 2002). In construing statutory language, the statute must be read as a whole and sections which are part of the same general statutory law must be construed together and each one given effect. Jackson v. Charleston County School Dist., 316 S.C. 177, 181, 447 S.E.2d 859, 861 (1994). Moreover, the true guide to statutory construction is not the phraseology of an isolated section or provision, but the language of the statute as a whole considered in light of its manifest purpose. Id., citing

Browning v. Hartvigsen, 307 S.C. 122, 125, 414 S.E.2d 115, 117 (1992) ("[A] statute as a whole must receive practical, reasonable, and fair interpretation consonant with the purpose, design, and policy of lawmakers. The real purpose and intent of the lawmakers will prevail over the literal import of particular words.").

33. The statute must be read in a sense that harmonizes with its subject matter and accords with its general purpose. Mun. Ass'n of S.C. v. AT&T Commc'ns of S. States, Inc., 361 S.C. 576, 580, 606 S.E.2d 468, 470 (2004). An ambiguity in a statute should be resolved in favor of a just, beneficial, and equitable operation of the law. State v. Hudson, 336 S.C. 237, 247, 519 S.E.2d 577, 582 (Ct. App. 1999). The goal of statutory construction is to harmonize statutes whenever possible and to prevent an interpretation that would lead to a result that is plainly absurd. Clemson Univ. v. Speth, 344 S.C. 310, 313, 543 S.E.2d 572, 573 (Ct. App. 2001). Courts will reject statutory interpretations that lead to absurd results clearly unintended. S.C. Coastal Conservation League v. S.C. Dep't. of Health and Envtl. Control, 380 S.C 349, 369, 669 S.E.2d 899, 909 (Ct. App. 2008).

34. Regulations are construed using the same canons of construction as statutes. S.C. Dep't of Rev. v. Blue Moon of Newberry, Inc., 397 S.C. 256, 261, 725 S.E.2d 480, 483 (2012); Murphy v. S.C. Dep't of Health and Envtl. Control, 396 S.C. 633, 639, 723 S.E.2d 191, 195 (2012).

35. The purpose of the regulations relevant to this case is to establish a setback distance to protect residences, schools, hospitals, and publicly owned parks from the obvious, adverse effects of landfills on surrounding property. Moreover, the purposes and findings of the Act express the importance of, among other things, preserving and protecting public health and coordinating landfill planning between state and local government. These purposes would be considerably undermined if "residence" was interpreted in a way that effectively eliminates this basic protection for property located next to landfills.

36. Under the Respondents' interpretation, if the permit applicant to DHEC can "win the race" – that is, succeed in obtaining a permit before a planned house, school, hospital, or park is finished with construction - these neighbors will be ignored for the purposes of S.C. Code Regs. 61-107.19, Part IV(B)(1)(a). The logical extension of the Respondents' argument is that any planned "residence" – no matter how far along the development or construction process – must be ignored. And since many of these ignored, planned developments are likely to

ultimately be constructed and occupied after the permit has been granted, under Respondents' interpretation, they will end up being located within 1,000 feet of the Class II Landfill a result the regulations seeks to avoid.

37. Respondents' position that no unconstructed or incomplete residences (lacking a certificate of occupancy) should ever be considered regardless of the circumstances, including the circumstances in this case, conflicts with the legislative intent and produces an absurd result. Under this interpretation, the necessity of having a CO for there to be a "residence" under the regulation would mean that DHEC must continuously monitor (up to the minute before making its consistency determination) the activities of local building departments to determine when and if a CO has been issued. Additionally, should a CO be granted for a residence adjacent to the proposed landfill during the permitting process, this sort of "springing" residence could essentially stop a permit in its tracks. This narrow interpretation could not have been intended by the legislature because it creates extreme administrative difficulty for DHEC and the potential for unforeseen, yet easily avoidable, expenses and problems for all parties.

38. The Court rejects the Respondents' argument that this Court must afford its staff's interpretation of "residence" deference. DHEC staff's interpretation of the regulation is not entitled to deference because only the interpretation of DHEC's Board is entitled to deference by this Court. S.C. Coastal Conservation League, 363 S.C. at 75, 610 S.E.2d at 486; Waste Management of the Carolinas, Inc., 2008 WL 4659522 at 11 (holding that deference is only due to the construction or determination of a statute or regulation when the DHEC Board formally adopts such construction).

39. Respondents point to a case recently decided by the South Carolina Supreme Court to suggest that DHEC Staff's regulatory interpretations of undefined terms and phrases are entitled deference. In Murphy v. South Carolina Department of Health and Environmental Control, 396 S.C. 633, 723 S.E.2d 191 (2012), the Court relied on staff's interpretation of "vicinity of the project," finding the interpretation to be "both reasonable and consistent with the plain language of the regulation." Murphy, 396 S.C. at 640-41, 723 S.E.2d at 195.

40. However, Murphy is distinguishable from this case. Unlike the staff member's interpretation of the regulation applicable in Murphy, DHEC staff's interpretation of "residence" in this case is neither reasonable nor consistent with S.C. Code Regs. 61-107.19.

ORDER

Accordingly, based on the foregoing, **IT IS HEREBY ORDERED** that DHEC'S decision on the Second Modified Permit (DHEC #101001-1201) is **REVERSED** and the Second Modified Permit is hereby **VACATED**.

IT IS FURTHER ORDERED that should the County wish to continue pursuing a Class II Landfill expansion permit, an entirely new and updated permit application must be filed, given the long period of time between this Order and the County's initial application in 2007, the rapid changes in residential development in the surrounding area since that time, the repeal and replacement of the governing regulation, and the outdated materials on which the permit relies including, but not limited to, the vicinity map from 2001.

IT IS FURTHER ORDERED that any arguments of the parties not specifically addressed herein are hereby deemed to be denied.

AND IT IS SO ORDERED.

SHIRLEY C. ROBINSON
Administrative Law Judge

March 19th, 2013
Columbia, South Carolina

CERTIFICATE OF SERVICE
This is to certify that the undersigned has this date served this order in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid or in the Interagency Mail Service addressed to the party(ies) or their attorney(s).
This 19 day of March 2013
By: Judicial Law Clerk

THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM THE ADMINISTRATIVE LAW COURT

Shirley C. Robinson, Administrative Law Judge

Docket No. 2011-ALJ-07-0556-CC

Grand Bees Development, LLC, ... Respondent,

v.

South Carolina Department of Health and
Environmental Control and County of Charleston,

Of Whom
County of Charleston is . . . . . Appellant.

PROOF OF SERVICE

I certify that I have served Appellant County of Charleston's **Notice of Appeal** on the all counsel of record by depositing a copy of the same in the United States Mail, postage prepaid, on May 24, 2013, addressed as follows:

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May 24, 2013

Honorable Jana E. Cox Shealy
Clerk of Court
Administrative Law Court
Edgar A. Brown Building, Suite 224
1205 Pendleton Street
Columbia, South Carolina 29201

Re: Grand Bees Development, LLC v. South Carolina Department of Health and Environmental Control and County of Charleston
Docket No. 11-ALJ-07-0556-CC

Dear Ms. Shealy:

Enclosed please find for filing is a Notice of Appeal in the above-referenced case.

Should you have any questions or need additional information, please do not hesitate to call. With kind regards, I am

Sincerely,

CHARLESTON COUNTY ATTORNEY'S OFFICE

Bernard E. Ferrara, Jr.

BEFJR/tc
Enclosures
cc: Etta R. Williams Linnen, Esquire
G. Trenholm Walker, Esquire
Jamie A. Khan, Esquire
Ross A. Appel, Esquire

Transcript of the Testimony of
GRAND BEES DEV. v. SCDHEC

Date: March 20, 2012

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STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT DIVISION
Docket No. 11-ALJ-07-0556-CC

Grand Bees Development, LLC,

Petitioner,

v.

South Carolina Department of Health and Environmental Control and County of Charleston,

Respondents.

ADMINISTRATIVE HEARING

****

Tuesday, March 20, 2012
10:12 a.m. - 5:41 p.m.

The hearing before the Honorable Shirley Robinson was taken at the Edgar A. Brown Building, 1205 Pendleton Street, Suite 224, Columbia, South Carolina, on the 20th day of March, 2012 before Cassandra E. Vance, Court Reporter and Notary Public in and for the State of South Carolina.

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STIPULATIONS

It is stipulated and agreed that this hearing is being taken pursuant to the rules of the Administrative Law Judge Division and the South Carolina Rules of Civil Procedure.

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THE COURT: This is the case of Grand Bees Development, LLC, Petitioner, vs. the South Carolina Department of Health and Environmental Control and the County of Charleston as the Respondent. This is Docket No. 11-ALJ-07-0556. And I think the Petitioners requested a contested hearing to challenge DHEC's issuance of a permit modification to Charleston County as it relates to a landfill. Okay. If we're ready to get started, first, I would like the attorneys to identify themselves and the parties that they're representing.

MS. WILLIAMS: Yes, Your Honor, good morning. I'm Etta Williams. I represent the Department -- South Carolina Department of Health & Environmental Control and I have with me Kent Coleman, who's the Director of Solid Waste and Mining at DHEC.

THE COURT: Charleston County?

MR. DAWSON: Good morning, Your Honor. I'm Joe Dawson and I represent Charleston County.

THE COURT: Okay. Thank you, Mr. Dawson.

MR. FERRARA: And I'm Bernie Ferrara. I also represent Charleston County.

THE COURT: Thank you, Mr. Ferrara.

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MR. WALKER: Good morning, Your Honor. My name is Trenholm Walker and I'm here for the Petitioner, along with Jamie Khan.

MR. KHAN: Good morning.

MR. WALKER: Behind Jamie is Taylor Bush, who's a principal in Grand Bees Development and a witness.

THE COURT: Okay. Thank you. Are there any matters that we need to address before we begin with the opening statements?

MR. WALKER: None from the Petitioner, Your Honor.

MS. WILLIAMS: No, Your Honor.

THE COURT: Okay. Thank you. Well, we'll begin with short opening statements, beginning with the Petitioner.

OPENING STATEMENT BY MR. WALKER:

MR. WALKER: Thank you, Your Honor. As you know, we're -- I'm here today on behalf of -- and Jamie -- on behalf of Grand Bees Development. As you stated, this is a challenge to a major modification to the landfill at Bees Ferry. The particular modification dealt with what's called a cellar mound for C&D, construction, demolition and land clearing. It used to be known as C&D

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under the regulations, but it's now known as a Class Two landfill.

The application was submitted in 2007. It was first acted on in early 2008. As Your Honor knows from reviewing the filings by the parties, that permit was appealed to this court. Chief Judge Anderson heard that appeal and issued a decision in June 2009 vacating the permit and remanding the application back to DHEC for further consideration.

Judge Anderson ruled on a single issue, which was whether or not the application and the permit was in compliance with local zoning and, in particular, whether a special exception was required.

DHEC considered the zoning. Charleston County went through the process of actually changing the zoning so that it would be exempt from the special exception.

In April of 2011, DHEC issued a draft permit for comment. In July of 2011 it had a public hearing, since there were over 400 people who requested a public hearing. And in September, September 1, 2011, to be exact, DHEC issued the permit. There had been no permit because the

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permit had been vacated and they reissued the permit on September 1, 2011.

It's important to keep in mind the size of this expansion. What's on the ground now at Bees Ferry is permitted to go to 74 feet. The mean sea level at grade is ten feet, so what we have is a mound of approximately 64 feet.

This modification would extend or expand the footprint of that C&D mound by five and a half acres. It would take the elevation of that mound from 74 MSL, mean sea level, up to 168 feet mean sea level.

The capacity of that mound would more than double. Based on the information in the application even at 200,000 tons a year, that landfill would be in operation for probably ten to 12 years before it reached its capacity.

Our client, the Petitioner, Grand Bees Development, has a large tract that's within a PUD known as Bees Landing PUD within the City of Charleston. Our property is next door. We share a common boundary, a long common boundary with a portion of the Bees Ferry Landfill where the C&D mound will be. That property since 1993 has been zoned PUD; it's been zoned

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residential. DHEC knew that. Our zoning allows over 500 residential units.
Grand Bees, before it acquired this property in November 2004, did significant due diligence -- you'll hear about this -- and understood -- or was not told that there would be an expansion of this nature. They actually went over and spoke to County officials and understood that if an expansion were requested, that there would be a special exception and a process for them to come in and make comments so that if it were granted there would be conditions on that permit.
We are here today and I'm at this point going to talk about the basis for our appeal, since that is the ultimate issue that you will need to decide. We first -- and to back up just a little bit. We did appeal or seek a review conference by the DHEC board and the DHEC board did not grant that. And then we came to Your Honor's court.
Our appeal really is in two areas. We have substantive grounds and we have some procedural grounds. The substantive grounds are three in number.

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The first ground deals with the distance buffer provision of the applicable regulation, which is 61-107-19. That's in Part IV, B.1.a., and that specifies that the toe of the mound should be no closer than 1,000 feet to any residence, school, day-care facility or public park.
Your Honor, as you know from looking at our trial briefs, we contend that the only way that makes sense is if "residence" includes planned approved residential use.
Grand Bees Development, before this application was submitted, obtained from the City of Charleston a site plan approval for hundreds of units next door to the landfill, and Mr. Bush will testify to that.
The second ground for appeal -- the second and third deal with an absence of consistency, an inconsistency between what the landfill plans to do and the local ordinances.
Both by statute and by regulation, a Class Two landfill -- which is what this is under the new regulation passed in May 2008 -- must be consistent with zoning, land use and any other regulations.
As part of the Solid Waste Policy and

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Management Act, local governments were required to enact ordinances dealing with solid waste, including landfills. Charleston County enacted such an ordinance. That ordinance will be in evidence. It's agreed to.
Under the ordinance, any major modification to a landfill has to be consistent with and in conformity with adjacent land uses and future land uses. Taking this mound from 74 feet to 168 feet and expanding it to the degree that I've described is entirely not consistent with the surrounding land uses. DHEC never considered that and they were required to consider it.
The second way that we are going to show that these plans approved by DHEC are inconsistent with local zoning land use and other ordinances is that the proposed plan does not include a 100-foot vegetative buffer adjacent to the property line with Grand Bees.
The zoning category for the landfill is industrial. The zoning category for Grand Bees is residential.
In this instance, even though the zoning ordinance was adopted after the landfill was in

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place, which meant the landfill at that time didn't have to put in a vegetative buffer, if the landfill undergoes an expansion, it would then have to comply with its own ordinance. And in this instance you will see that the plan for the landfill as approved by DHEC has no, none, vegetative buffer along the property lines with Grand Bees. Both of those are substantive violations of the County regulations.
On the procedural side, you will learn that this application was decided on stale information. The permit was issued September 1, 2011. Some of the information that the County relied on went back to 2001, more than ten years before the permit was issued. In particular, DHEC relied on an aerial photograph that was provided by the County showing surrounding land uses and the condition of the land that was way out of date. You will hear that that area and the assessment of the surrounding land uses, but in particular what's happened to the surrounding land use, was well out of date.
You will also hear that when this matter was

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remanded and the permit vacated by Judge Anderson and sent back to DHEC, the only thing they looked at in that three-year period that they had the application under consideration was whether it complied with zoning. They also did some substantive requirements for the County to bring the landfill in compliance with the new regulation. But in terms of this application, the only thing that was done was they took a look at the zoning. They did not do a consistency review at that time before issuing this permit of all the other ordinances, which is a significant procedural deviation.

We understand and accept that the landfill was next to our property when we bought our property in November 2004 and it's certainly not our position that the landfill cannot expand. What we're asserting is that any expansion needs to be in compliance with the applicable statutes and regulations. And if in this instance the statute requires that the expansion be at least 1,000 feet from residences and residential use, then they need to re-engineer that C&D mound.

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Also, the provisions that we're going to talk about have built into them certain mitigating factors that would help reduce the impact of what's essentially a legalized nuisance next to my client's property and those types of mitigating factors should be looked at so that the County and Grand Bees can be good neighbors, which we think can happen.

What we're asking the Court to do, after you've heard the testimony, when it comes time for you to consider the evidence and the applicable law, is to vacate the permit for the reasons that we stated and to vacate it outright. The County can then file a new application based on current information. DHEC can then evaluate it fully under the new regulation which came into effect in May 2008. And then at that time we hope we will have a plan for a landfill that we can live with.

Thank you, Your Honor.

THE COURT: Thank you, Mr. Walker.

Ms. Williams?

OPENING STATEMENT BY MS. WILLIAMS:

MS. WILLIAMS: Thank you, Your Honor.

Your Honor, as you've already heard, this case

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is a continuation of a case that was tried in January 2009, three years ago, that was heard by Judge Anderson.

At the end of that case, Your Honor, Anderson, he ruled that DHEC was to -- the permit was vacated and that DHEC was to review the permit in accordance with the ZLDR, which is the zone -- Zoning Land Development Regulation ordinance from Charleston County.

DHEC submits to you today that that is exactly what it did. It reviewed the permit modification against the ZLDR after it was amended in December of 2010. And on September 1st, 2011, DHEC reissued the permit modification for the Bees Ferry Landfill.

You have heard Grand Bees talk about today what their grounds are for this appeal and the first ground is the buffer -- buffer provision.

There is a provision that was in 61-107-11 and also 61-107-19 which talks about the fact that a landfill cannot be within 1,000 feet of a residence, day-care center and some other dwellings, structures.

In 2008, when DHEC first issued the permit modification, there were no actual residences

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on the Grand Bees property, and that was four years after they purchased the property. They purchased it in November 2004. In 2011, when DHEC reissued the permit modification, there were still no residences on the Grand Bees property.

The regulation is not ambiguous. The word that's used in the regulation is "residence." It doesn't say "proposed residence." It doesn't say "planned residence." And when there's no definition -- which there is no definition in the regulation for the word "residence" -- the common meaning and usage of the word is what is to be used.

And a "residence," according to the dictionary, is a dwelling place where someone lives. It's a place that can be habitable, a structure. There are no structures on the property. So, therefore, DHEC contends that it has used the proper meaning of the word "residence" in construing the regulation and that this argument that they have raised about the landfill being within 1,000 feet of residences is a failed argument.

They also talk about the fact that there's no

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consistency with the -- I mean, with the -- well, let me go back. They talk about the fact that DHEC did not start from the very beginning and rereview the whole permit modification for purposes of reissuing the permit. Well, DHEC contends that we did not need to do that. That was not the instructions from Judge Anderson. He asked us to review the permit modification in accordance with the ZLDR, which is what we did once Charleston County amended the ZLDR. Judge Anderson did not say, "Go back and rereview the permit modification for buffer requirements," which is something that was litigated fiercely in that first hearing, about whether the "residence" should be "proposed," you know, it -- should the definition be for "proposed" or "planned residence." He did not even reference that in his -- in his order. So it was not a concern of his that DHEC had not reviewed it properly the first time. And in looking at whether DHEC should have rereviewed the other consistency determinations, there is a regulation that says that once DHEC has made determinations, prior determinations, prior to the effective date of

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the new regulation, which is 61-107-19, which came out in May of 2008, that those determinations remain applicable subject to public notice, public comment and appeal. So DHEC really does not even have the authority to go -- unless the Judge instructs us to do so -- to go back and rereview the determinations that we have made previously. And, actually, there was no reason for us to do that because the Judge did not instruct us to do so. There has been a lot of talk about DHEC using old information to make its determination and that is not correct because DHEC went out and actually looked at the site prior to issuing the permit modification. Prior to the issuance of the September 1st reissuance of the permit modification, DHEC went to the site. We saw that there were no residences there, so there was no need for us to -- to revisit that issue, because there are no residences at the site. In terms of the ordinances that Grand Bees has brought up, DHEC will admit that there were one or two local ordinances that we did not see prior to making our decision. However, you

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will hear that those ordinances are so general that the ZLDR -- ZLDR actually encompasses those ordinances that they bring up. One of the ordinances state that the site location, the disposal site shall conform with the surrounding environment and conform with future development of the area. That's all it says. In reviewing the ZLDR, which has more specific requirements in it, DHEC did take into consideration these two local ordinances that Grand Bees says that we did not consider. No, we did not physically see them, but they are encompassed in the ZLDR and was a part of DHEC's determination in making its decision. DHEC will submit to you today that we thoroughly reviewed the ZLDR and that Charleston County's landfill is consistent with the -- with the law, with the solid waste management plan, state and local plans, and that we stand by our decision in issuing the permit modification. Thank you very much.

THE COURT: Thank you, Ms. Williams. Mr. Dawson?

MR. FERRARA: Thank you, Your Honor.

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THE COURT: I'm sorry, Mr. Ferrara.

OPENING STATEMENT BY MR. FERRARA:

MR. FERRARA: I just want to review again, Your Honor, the -- what is the modification to the Bees Ferry Landfill and its threefold. The expansion includes increase of disposal limit of waste from 180,000 tons to 200,000 tons, increase in volume. The second aspect is it expands the footprint of the construction and demolition debris cell by five and a half acres. And the third component of the expansion is it increases the elevation from 74 feet to 168 feet. The expansion does not bring the landfill any closer to the Grand Bees Development property. The lateral -- the lateral expansion of the five and a half acres is in the interior of the landfill, not on the property line adjacent to the Bees Ferry Landfill, but in the interior of the Bees Ferry Landfill. And the volume is a 20,000 increase in disposal of construction and demolition debris waste. The expansion is all self-contained in the fill area of the C&D portion or the C&D cell. So

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with that said, whether or not it's a massive contribution, subjective conclusion, Your Honor.
Your Honor, this case -- and you've heard background about how we got here today from both the Appellant and the Respondent, South Carolina DHEC. But this case Your Honor, is not about whether DHEC erred in its interpretation or its application of the regs and the statutes, but, instead, it's about the fact that Grand Bees Development purchased property in 2004 adjacent to the Bees Ferry Landfill and the fear that they're not going to be able to develop the lots, place houses on the lots and sell the -- sell the houses or the lots.
It's all -- it's an economic issue with them. Therefore, second time around, it has to find something defective regarding the permit in order to prevent the expansion of the C&D cell. What Grand Bees Development is going to do today, Your Honor, is they're going to challenge the permit, claiming that DHEC missed some step in the County's application for the permit. But, Your Honor, from a factual

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perspective, Grand Bees will not be able to show a defect in the permit. The issues before Your Honor are really questions of law, not questions of fact.
The South Carolina Solid Waste Policy and Management Act requires DHEC to render a consistency determination of whether or not the proposed expansion is consistent with several things: State and County and regional solid waste management plans, whether it's consistent with local zoning and land use ordinances and regulations and other applicable ordinances and the buffer requirements that are contained in the DHEC regulations.
Grand Bees claims that DHEC did not do this altogether, did not make their review together and now asks this Court to do the same thing. Grand Bees wants this Court to do what DHEC has already done, but Grand Bees is going to struggle from a factual perspective because DHEC asked for and received all of the supporting documentation from the County to allow DHEC to make its determination of consistency.
Before submittal of a permit application, the

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regulations require the County to provide documentation of ownership and control. County has done that and requests that DHEC make a determination that the Bees Ferry Landfill expansion is consistent with the local zoning and other ordinances and that it meets the buffer requirements of the reg. So Grand Bees today is going to try to find or ding those parts of the permit in order to try to show that the permit is defective.
The County did what the regulation said. DHEC made its determination. However, again, this Court -- I mean, this -- Grand Bees wants this Court to interpret the County's ordinance to support its position that there are defects in the permit. Grand Bees wants this Court to give deference to their interpretation of the regs, their interpretation of the ordinance and their interpretation of the permit, not DHEC's interpretation of the regs.
Before I discuss Grand Bees challenges to DHEC's interpretation, what I would like to just briefly cover with Your Honor is what Grand Bees does not challenge with respect to the permit.

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It doesn't challenge DHEC's application process. It doesn't challenge the public notification and participation element of the permit application process. It does not challenge the notice of intent of the County to file a permit application, nor the contents of that notice.
It does not challenge the notice of DHEC's draft determination of need consistency that was published in the newspaper. It does not challenge the public hearing that was set in the matter. It does not challenge the notice of DHEC's determination that was sent to persons who asked to be notified of that determination or those who submitted comments about the draft determination. Grand Bees does not challenge the County's publication of its notice of filing the permit application in the local newspaper, doesn't challenge the content of that notice. Grand Bees does not challenge DHEC's publication of that notice into the newspaper. And, finally, Grand Bees doesn't challenge the public hearings conducted by DHEC on the draft permit.
So what does Grand Bees challenge here today?

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It contends the setback of the expansion of the C&D cell violates that portion of the regs that provides the boundary line of the fill area, the boundary line of the C&D cell within the Bees Ferry Landfill shall not be located within 1,000 feet of any residence, school, church, hospital, or publicly owned recreational area. However, Your Honor, that provision in the regs is not a mandatory provision. It is a discretionary provision. It contains the language, it provides "Unless otherwise approved by DHEC, the site for an expansion of an existing landfill must meet certain standards," and one of those standards are -- one of those standards is that "the boundary of the fill area shall not be located within 1,000 feet of any residence." It's a discretionary standard, Your Honor, "unless otherwise approved by DHEC."

Factually you're going to hear today that there are no residences on the Grand Bees property. It is a forest, okay? It is trees that have not been trimmed. There's no infrastructure in place. It is a forest. It is green.

Why don't any residences exist on the Grand

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Bees property? Because all that has occurred with the Grand Bees property is they have submitted -- this is the second amendment to the Planned Unit Development of the City of Charleston. Grand Bees has secured approval by the City of a development guideline plan. No design drawings, no infrastructure design drawings, no drainage, no roads, no preliminary plat, no conditional plat, no final plat, cannot sell a lot in Grand Bees Development property, Your Honor.

However, as their lawyer stated, the City of Charleston has given its review and approval which has resulted in an amendment to the City of Charleston's Planned Unit Development for that particular area based on a most recent submittal of a development plan by Grand Bees.

All right. So what else has Grand Bees challenged here today, Your Honor? It contends that the County's permit violates the County zoning requiring a buffer of a 100 feet from the property line of the Bees Ferry Landfill to the permitted C&D boundary line.

So, Your Honor, before I get into -- there already is a buffer there. There is a 100-foot

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buffer. From the Bees Ferry Landfill property line to the boundary line of the C&D cell, there is 100-foot buffer. Buffer exists. However, that ordinance is discretionary, as well, not a mandatory ordinance, not a mandatory provision. It states that the planning director of the County of Charleston has the discretion to require this buffer that Grand Bees alleges should be installed and maintained and planted.

The planning director of Charleston County never made that determination, never was asked to make that determination by Grand Bees. What Grand Bees is asking Your Honor is to create a new buffer. There already is -- a buffer already exists.

And, finally, Your Honor, the third argument is that Grand Bees contends the proposed height of the C&D cell doesn't conform to the County's land use and does not take into consideration the nature of their residential site, does not conform with the surrounding environment and with the future development of the surrounding area.

Well, DHEC's review does take into

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consideration all of that, Your Honor, because DHEC performed its review in accordance with the South Carolina Solid Waste Policy and Management Act and in that Act, the purpose and intent lists a laundry list of items of why our General Assembly adopted the Act and what the findings and purposes of that Act encompass. And I'm just going to go over briefly a couple of those. But this notion that the proposed height of the cell doesn't conform to the County's land use because it doesn't conform to the surrounding environment and future development of the area, we attack it on two fronts.

The first one is DHEC did its review in conformance with the Act. The purpose of the Act is to protect the public health and safety, to protect and preserve the environment of the state, to require local governments to adequately plan for and provide efficient, environmentally acceptable solid waste services, to ensure that solid waste is transported, stored, treated, processed and disposed of in a manner adequate to protect human health, safety and the environment.

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Therefore, the Act seems to validate DHEC's review.
Second, Your Honor, the purpose of the Planned Unit Development ordinance of the City of Charleston and the standards within that ordinance of the City of Charleston, the very jurisdiction that just approved their plan on Valentine's Day of this year, affirms this, as well, and that is that Grand Bees's plan conforms with the surrounding, neighboring zoning districts, it is compatible with the environment. So those two fronts eliminate this notion that DHEC didn't review it in accordance with the local zoning and land use ordinances.
So where does that leave us, Your Honor? Grand Bees Development's got to show, Your Honor, error. It has to show that DHEC failed to follow the regulations or the statutes in the Solid Waste Policy and Management Act. And I'm going to refer to a case, Your Honor, and this is the Southeast Resource Recovery Act case and our Supreme Court stated in that case that the Act, the Solid Waste Policy and Management Act, does not specify procedures for DHEC to follow

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to make a consistency determination. There is no set of guidelines on how DHEC makes that determination.
Your Honor, DHEC did submit -- Grand Bees -- I'm sorry -- did not submit comments to DHEC during the consistency process on any elements of the permit application process. But on the eve of trial, today, Grand Bees finds two provisions in two ordinances that it thinks they can show -- that they can apply to show error. And Grand Bees is going to have witnesses testify as to what they think apply and what they think the regulation requires, even though they didn't raise these issues to DHEC during the application process.
Grand Bees needs to tell this Court how DHEC violated the regs. And it's not going to be able to do it. It cannot do it because there's no set methodology of how DHEC reviews the regulations and Grand Bees cannot demonstrate that the permit is defective because of Grand Bees' interpretation of the County's ordinance.
Again, in that Southeast Resource Recovery case the Supreme Court reversed the Circuit Court saying that a broad general statement of goals

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of Newberry County's disposal plan -- and those words were "to preserve, protect and enhance the environmental quality of Newberry County solid waste disposal" -- the Supreme Court said, "Those broad general statements cannot serve as the basis to conclude the facility was inconsistent with Newberry County's disposal plan." Those same broad, general statements occur in Charleston County's ordinance that Grand Bees is going to argue today, an ordinance that was adopted in 1974, two years after the County bought the property to create, construct the landfill.
Those same broad general statements that the landfill site must conform with the surrounding environment and conform with future development of the area. Those statements are what Grand Bees contends makes the County's permit defective. And, again, Your Honor, based on that Southeast Resource Recovery case, those statements cannot serve as a basis for this Court to conclude that the expansion is inconsistent with the regulations or the act.
So, in conclusion, Your Honor, if this Court determines that the permit is not inconsistent

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with the regulations, the permit must be issued and effective. The County of Charleston requests that the Court affirm the decision and the issuance of the permit by South Carolina DHEC.
Thank you, Your Honor.
THE COURT: Thank you.
Mr. Walker?
MR. WALKER: Thank you, Your Honor. Our first witness will be Taylor Brief -- Taylor Bush.
TAYLOR BUSH, having been duly sworn, testifies and examines as follows:
MR. BUSH - DIRECT EXAMINATION BY MR. WALKER:
Q: Mr. Bush, will you tell us where you live? Where do you reside?
A: I live in -- at 240 North Serenata Drive, Ponte Vedra Beach, Florida.
Q: And are you in the development business?
A: I am.
Q: And who do you work with?
A: I work with a company called Stokes Land Group.
Q: How long have you been associated with Stokes Land Group?
A: Since 1982.
Q: Would you tell the Court a little bit about

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Stokes Land Group, what it does?
A: We're a development company. We've been a home building company in the past, but predominantly now we -- we acquire property and develop homesites.
Q: All right. Does Stokes Land Group get involved in the actual construction of houses, vertical construction?
A: We do not.
Q: What is Stokes's thing? What does it do?
A: Well, we -- we -- we buy property and put in the roadways and then sell the homesites to home builders.
Q: What states does Stokes Land Group have projects in or has had projects in?
A: We operate in Florida, North and South Carolina, and we have some property in Georgia.
Q: Is Grand Bees Development's property your first project in South Carolina?
A: No.
Q: Where have you had other projects in South Carolina?
A: We have a property in Hilton Head -- off of Hilton Head, Bluffton, and a property in Myrtle Beach.

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Q: Have you also done some development in Berkeley County?
A: We have, yes.
Q: Okay. Now, how large are the projects that you undertake, generally?
A: They vary in size. The property in Myrtle Beach is -- at build-out will be about 1800 homesites and the property in Berkeley County is almost complete now, but it was probably around 1500 homesites.
Q: And roughly how many homesites were projected for this land next to the landfill?
A: Between four and five hundred.
Q: Okay. Now, let's talk for a second about Grand Bees Development itself. Was that created for the purpose of acquiring this land?
A: It was.
Q: Would you please tell the Court a bit about the due diligence that Grand Bees did before it closed on this property in November of 2004.
A: Well, we had a local partner that was with our company at the time and -- and his responsibility was to review all aspects of the property, the zoning of the property, what it was entitled for, what could be done with it,

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and -- and the market, surrounding market, who would be buying the homesites and other land uses around the property.
Q: Did you yourself partake in some of that due diligence?
A: I did. He reported to me and I would review information he would provide.
Q: Did you go to the property before the closing and look at it?
A: Yes, several times.
Q: Were you aware that the County was operating a landfill next to this property?
A: Yes.
Q: Were you aware of the particular type of mound that was the closest mound or cell to the property you were looking at?
A: Yes.
Q: What type of mound was it?
A: A construction debris mound.
Q: And what would have been the status of it when you looked at it before closing? Was it in use then?
A: It was.
Q: Did you actually go on the landfill property and look at it?

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A: I did.
Q: Did your group consider the landfill as an important potential factor in your acquisition?
A: We did.
Q: Did you have concerns about it?
A: No. It didn't concern us. The use seemed to be compatible to us and the -- and the size of the landfill.
Q: And what was it that you determined made you feel like that use then was compatible with your potential residential use?
A: Well, we reviewed the permit.
Q: Okay. And did that permit contain a height limitation?
A: It did.
Q: Do you recall approximately what that was?
A: It was 60-some-odd feet.
Q: Okay. And were you able to determine what elevation the mound was around the time that you were looking at the property?
A: I don't recall.
Q: Was it close to being maxed out; do you know?
A: I don't really recall exactly what stage it was at. I was more interested in what the capacity was at the end of the day.

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Q: To your knowledge, did the local partner that you've described to us actually meet with the solid waste officials of Charleston County?
A: I believe he did.
Q: All right. Did he report back to you about those -- that meeting or communications? Before closing.
A: Yeah, I -- I don't recall our specific conversation with him about -- about that.
Q: Before closing, did you consider the possibility that the landfill might expand?
A: Oh, yeah, we did talk about that possibility.
Q: And was it of concern?
A: Well, not particularly, because we -- you know, we knew that it would go through the normal process. We did determine that it required a special exception if it were to expand and so we knew that through that process we would be notified, as an adjacent property owner, and we would be able to weigh in on what was being done over there and how it was being done beyond its current permit.
Q: All right. Was that opportunity to weigh in, to make comments on what might have then been proposed, important to you?

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A: Oh, very. We rely on the zoning ordinance to protect our property rights in -- in -- in all cases where we acquire property.
Q: Well, let's turn to the zoning, since you mentioned it. Did the due diligence include looking into the existing zoning?
A: Yes.
Q: Would you tell the Court what the existing zoning was for this large parcel?
A: I believe it was industrial.
Q: I'm talking about the parcel you were looking at.
A: Oh, our parcel. Oh, yes, absolutely. It was residential, PUD --
Q: Okay.
A: -- Planned Unit Development.
Q: Was it part of a larger PUD?
A: It was.
Q: Was the land that was subject to the Planned Unit Development in the County or in the incorporated boundaries of the City of Charleston?
A: It's in the City of Charleston.
Q: Did, as part of your due diligence, your entity obtain a copy of the then existing PUD plan?

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A: We did.
Q: And what was the principal use that was allowed on your tract under the PUD?
A: It was all residential.
Q: Did you intend to purchase it for any purpose other than residential --
A: No.
Q: -- development?
A: No, not at all.
MR. WALKER: Your Honor, we met with opposing counsel and have a stipulation on the admission of Petitioner's first ten exhibits. I now want to refer to one of those and, since we have a stipulation, I am now going to move in Petitioner's Exhibits One through Ten.
THE COURT: Is that correct?
MR. DAWSON: Your Honor, it is correct, but I want to make sure what we stipulated to is clear, and that is the admissibility of the documents to include two County ordinances. I want to alert the Court, though, that I will object if his witness attempts to draw conclusions as to the legality, meaning the legal document, trying to interpret what the ordinances say. County stipulates and admits to its

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admissibility, but I will object if he wants to testify as to what they mean.
MS. WILLIAMS: DHEC also stipulates to the admissibility.
THE COURT: Okay.
MR. WALKER: Thank you, Your Honor.
(Petitioner's Exhibit Numbers One through Ten were admitted into evidence.)
Q: Mr. Bush, I'm going to hand you Petitioner's Exhibit Three. Would you identify that for the Court?
A: It's development guidelines for Bees Landing.
Q: And what is the effective date of those guidelines?
A: December 22nd, 2005.
Q: Now, that's after the acquisition. Did you -- but before the permit application. Did you review a similar set -- a similar PUD plan before you closed?
A: We did.
Q: Okay.
A: Yeah. Yes.
Q: I'm going to hand you what's been marked as Petitioner's Exhibit Two. If you'd please identify that.

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A: It's a limited warranty deed.
Q: Is that the deed by which Grand Bees Development, LLC, took title to this tract?
A: It is.
Q: What was the purchase price?
A: $4,141,518.
Q: And when did the property close?
A: This is dated the 15th of November, 2004.
Q: Since that closing in November 2004, Mr. Bush, what has been your primary role with respect to the project of Grand Bees Development?
A: To oversee and in the case when Lee Barnes was with our company, to assist his efforts to -- to plan, to land plan the property, and then to engineer the property and to acquire permits to develop the property.
Q: Let's go through those. Would you tell the Court about the land planning that occurred after closing?
A: Yes, we -- we would land plan various phases of the site. And, in fact, I think we received site plan approval for the entire site.
Q: Did -- was this done in-house or by professional -- professional consultants?
A: It was -- it was done by professional

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consultants.
Q: And do you recall who put together your initial land plan, which firm?
A: We were using -- Thomas & Hutton, I believe was the firm we were using at the time.
Q: Did Grand Bees have to pay them --
A: Yes.
Q: -- to develop that?
A: Yes, sir, quite expensive.
Q: You mentioned engineering. Would you tell the Court about the engineering work that Grand Bees did, what that would consist of?
A: Yes, once we -- once we received site plan approval -- and the purpose of the site plan approval process is to determine -- it gives the -- the City, in this case, an opportunity to confirm that our plan for the project is consistent with the zoning.
So during the site plan approval process, they review all aspects of -- of what we're planning to do. And this is prior to our investing in the actual engineering of the water and the sewer and the streets.
So once the site plan is approved, then we hire an engineering firm, like Thomas & Hutton, to

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actually design the -- what we call the infrastructure design, which would be the -- the water/sewer, the storm and the roadways. And then they would also, acting as our consultant, submit -- apply for and receive the permits to construct.
Q: All right. Well, let's talk about -- you mentioned "stormwater." Did Grand Bees pursue the approval of a stormwater management permit with OCR -- DHEC-OCRM --
A: Yes, we did.
Q: -- and the Corps, to the best of your knowledge.
A: To the best of my knowledge, yes.
Q: To the best of your knowledge, was that approved?
A: Yes.
Q: To your knowledge, were there other specific development permits that Grand Bees pursued that were obtained?
A: Yes. Water/sewer. We had to get -- excuse me -- I believe we have to get actually engineering approval from the City to ensure that our design criteria that we've used is consistent with what they require.

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As an example, some cities require different levels of base and different thicknesses of asphalt and -- and they need to confirm that -- that our engineers have designed in accordance with their -- their rules. And we've done -- and we've done that on several phases within the development.
Q: The initial permit application was submitted sometime in mid-2007. You mentioned an approval of the site plan by the City of Charleston. Was that before the permit application in mid-2007?
A: Oh, yes, it would have to be.
Q: All right.
MR. WALKER: I have an exhibit that has the approved site plan that was not part of the original ten that we stipulated to that he can identify.
MR. DAWSON: I don't have any objection, Your Honor.
MS. WILLIAMS: No objection, Your Honor.
MR. WALKER: We also have one that's not on a poster board that we can substitute, that we can fold up for the court reporter.
THE COURT: Okay.
MR. WALKER: We'll move -- we move the site plan marked as Petitioner's Exhibit Eleven into

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evidence.
THE COURT: With no objection, it's admitted.
(Petitioner's Exhibit Number Eleven was admitted into evidence.)
Q: What is Petitioner's Exhibit Eleven?
A: It's a -- it's a site plan of --
Q: Okay.
A: -- our development.
Q: And would you stand up -- and I'll be the easel for a minute -- and would you point out the location of the landfill.
A: It's right here (indicating).
Q: And you're pointing to what corner of this?
A: I'm pointing to the --
Q: To the lower left corner?
A: -- lower left corner.
Q: Right. And there's a yellow line that runs across there, the highlighted line. Is that along the boundary of this landfill?
A: It is.
Q: All right. And would you tell the Court how you divided up your -- your land plan. Was it done in phases or sections?
A: It was done in phases.
Q: All right. And how many phases?

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A: I believe our engineering drawings are divided up into phase one, phase two. I believe this is -- this is phase three (indicating). I can't recall exactly. Four, five and six and then seven, eight, nine and ten.
Q: All right. Looking over on the left-hand side of Exhibit Eleven, which is the design of land -- or the plan for land next to the landfill itself, what is shown in that -- in those phases next to the landfill?
A: Single-family lots, homesites for single-family homes.
Q: Did Charleston County approve the site plan for that location?
A: Well, the City did.
Q: City, I'm sorry. City of Charleston, did they do that?
A: They did.
Q: All right. Now, have you proceeded farther along on any one aspect of the land closest to the landfill? Have you proceeded further with some land more than others?
A: Yes, we -- we've engineered and permitted this phase here, which is phase seven (indicating).
Q: Okay. And that would be the land under what's

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shown as R-1 to the right of that water body?
A: That's correct.
Q: All right. When you say it's engineered, what do you mean?
A: We've designed the -- the water, the sewer, the storm system and the roadways.
Q: Is part of that phase within 1,000 feet of the toe of the landfill, to the best of your knowledge?
A: It is.
Q: All right. To the best of your knowledge, are a number -- a significant number of the approved residential lots in the site plan within 1,000 feet of the toe of the C&D mound?
A: Yes.
Q: Do you have an approximate number?
A: I think more than 100.
Q: Okay. This drawing is dated February 21st, 2006. Is that the approximate date of the approval by the City?
A: I would -- I would think that it would be. As soon as we purchase property, we immediately start this process. So that falls pretty much in line with the timing of the purchase of the property.

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Q: Very good. Thank you. You may sit down.
A: (Witness complies.)
Q: Now, is part of your job to market the property to builders?
A: It is.
Q: Did you do that with respect to this site after it closed in November 2004?
A: Yes.
Q: And who are some of the custom builders that your company has done business with on a periodic basis over the years?
A: We've done business with most of them. We -- we have -- we've -- we've conducted business with Pulte and Lennar, Beazer Homes, Ryland Homes -- what I call regional builders -- Eastwood Homes. We -- we've done -- we have done business with most -- most of the home builders.
Q: And if you come to terms with a builder, do they typically take down a number of lots?
A: They do.
Q: Was there interest in this property among those builders that you mentioned?
A: Yes.
Q: All right. And who or which builder showed the

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most interest?
A: Well, they -- they all showed interest in the property. Ultimately we put the property under contract with Lennar Homes.
Q: All right.
A: They were going to buy lots from us.
Q: Did that close?
A: No, it did not.
Q: Now, at some point did you become aware that there was an application or a permit for a significant modification to the C&D mound next to your property?
A: Yes.
Q: How did you learn about that application or permit?
A: We received an anonymous email from an address that I didn't recognize, just in our general mailbox.
Q: Would that have been in early 2008?
A: I don't recall exactly when, but it was --
Q: Was it --
A: It was -- it was within the appeal period time when the permit modification was issued.
Q: Was it within the 15-day period to apply for a review conference with the DHEC board?

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A: It was.
Q: When you received that notice, did you look into what the County was intending to do?
A: I -- I hired a consultant to -- to analyze that for me.
Q: Did you find out the dimensions of the expansion that the County was contending?
A: Yes.
Q: Did that concern you?
A: It did. It concerned me a lot.
Q: Did Grand Bees at that time pursue or make the request for a review conference with the DHEC board?
A: I know we appealed it. I don't recall if we had a review conference. I suppose that would be the proper step.
Q: Did it -- did it ultimately end up in this court, the Administrative Law --
A: It did.
Q: -- Court before Judge Anderson?
A: Yes.
Q: Now, before we talk about that, I want you to tell the Court your specific concerns as a person in the development business, who's been doing this for a long, long time with a

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proposed expansion, the increasing elevation, the increase in footprint, the increase in volume.
A: Well, the increased elevation would become a visual -- a visual problem from the marketing of the property and -- and from a lifestyle point of view, someone living there. It had -- it had changed from something that was basically treetop level to something that was the height of a 13- or 14-story high-rise building. And so from that point of view, it was extremely concerning, because now we had what was an adjacent land use that we felt was compatible because of its -- of its height, but then obviously by increasing the -- in order to increase the height, they had to increase the footprint. It's just geometry, you know.
Q: Right.
A: And so that increase of a footprint also increased the life of the landfill. And when you increase the life of the landfill, it means it's going to be going on for a long, long time. Before it had an end of life that was probably consistent with the point at which we would be developing phase eight, nine and ten.

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But now the end of life is the people living there, their kids would be in college by then. And so it -- it was a dramatic change to us.
Q: Did those concerns that you had include aspects of the operation of the landfill, not just its elevation?
A: Absolutely.
Q: Tell us about that.
A: Well, I'm not an expert on the operation of landfills. I'm sure there's some experts in this room that could testify better than I could. But there's -- it's undeniable that it's -- there's dump trucks, there's bulldozers, there's all kind of activity like that that go on during the day, and so that -- that noise is concerning.
Q: Would that activity be going on at a higher elevation above the tree line?
A: Once the mound with this -- with this modification to this permit, it would be.
Q: And is there noise, to your knowledge, associated with those activities?
A: Yes.
Q: What kind of noise?
A: Well, bulldozers have safety buzzers when they

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back up. And they back up -- every time they pull forward, they have to back up.
Q: What about dump trucks?
A: Dump trucks have -- you know, climbing the mound would be like climbing -- would be like climbing a mountain. And so going up the mound, they're going to be straining and, coming down the mound, they're going to be -- they -- they have a thing called a back brake so they preserve their clutch.
I used to develop property up near Asheville and the biggest complaint we got from homeowners were the dump trucks going down the mountain after they had delivered a load and using their back brakes. We actually wound up having to prohibit the use of back brakes in that development.
Q: And at the time of dumping, is there noise associated with that?
A: Yeah, just, you know, the clanging of the big dump truck. And, of course -- of course, construction debris is, you know, concrete and things like that, so it's -- it's a little bit louder than plastic bags of garbage.
Q: After you concerned -- does it all -- because

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of its being construction debris, did you have concern about dust?
A: It would generate -- I'm sure it would generate dust from the activity.
Q: And what is the major traffic artery that feeds the Bees Ferry Landfill?
A: Bees Ferry Road.
Q: Is that the same traffic artery that feeds your land?
A: It is.
Q: Did you have any concern about the -- the additional truck traffic on Bees Ferry?
A: Yes. Yes.
Q: I didn't hit on this earlier, but I would like to put this land in context. Is your land part of a larger development?
A: It is.
Q: And what is that known -- popularly known as?
A: Well, the -- this development guideline that you gave me earlier as Exhibit Three is for Bees Landing and Bees Landing is the -- is a larger development of which we purchased the remaining property within that development and --
Q: What is it known as generally?

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A: It's known as Grand Oaks.
Q: All right. Are there other communities in Grand Oaks?
A: Yes.
Q: Have those been developed?
A: They have.
Q: Do you have an estimate of the number of residential units that are up out of the ground at Grand Oaks?
A: Well over a thousand.
Q: Is Grand Bees a member -- by owning that land is it a member of the Master Grand Oaks Association?
A: It is.
Q: And for a number of years who is the president of that association?
A: Wally Jack.
Q: Is he here today?
A: He is.
Q: Okay. Now, during the course of this case, have you looked at some parts of the application that was submitted in July of 2007 by the County?
A: I had parts of it pointed out to me.
Q: Did -- did that include an aerial that was part

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of the application that's been admitted as an exhibit?
A: It did.
MR. FERRARA: Petitioner's Exhibit Thirteen is simply an enlargement of the vicinity map that was page G-04 of the application that's already in evidence and we'd offer that.
MR. DAWSON: No objection, Your Honor.
MS. WILLIAMS: No objection.
THE COURT: Okay. Admitted with no objection.
(Petitioner's Exhibit Number Thirteen was admitted into evidence.)
Q: And I'm going to hold up -- and, again, I will be the easel -- Petitioner's Exhibit Thirteen, which is an enlargement of the vicinity map. And what I'd like you to do, again, is to stand, if you would, please, and point out for the Court --
MR. WALKER: And may -- may we come a little closer, Your Honor, since the print is small?
THE COURT: You may.
Q: All right. If we'd get just a little closer. If you'd just -- if you'd stand there. Would you point out the landfill area?
A: This area here (indicating).

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Q: So in the center?
A: Yes.
Q: And where is your property in relationship to this?
A: Let me get my glasses. We are over in this area over here (indicating).
Q: To the right of it?
A: Yes, over in this area.
Q: Okay. And does this vicinity map that was part of the application indicate the use of your property?
A: It does. It's zoned PUD, Planned Unit Development.
Q: What does it say underneath that?
A: Land use, residential.
Q: Okay. Now, I'm going to ask you: Is there -- the property to -- to the north of the landfill, is there a land designation?
A: There is.
Q: What does it say?
A: Zoning, AGA, land use, agricultural.
Q: I'm going to ask you a question about that, but first I want you to identify, does this indicate when the aerial photograph was current?

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A: Current as of 2001.
Q: Okay. Now, going back to the land that you just described to the north of the landfill, is it still agricultural?
A: No, it is not.
Q: What use is it?
A: It's residential.
Q: Is it part of another PUD, or Planned Development District?
A: It is.
Q: What is the name of that?
A: Long Savannah.
Q: Approximately when was that zoning changed and approved by the City of Charleston?
A: I believe in 2009.
Q: All right. Now, when this application was acted on after remand, would that have been the category of zoning, to the best of your knowledge, of the land that's shown as agricultural here?
A: You mean when they resubmitted?
Q: Yes.
A: Yes, it would have been residential.
Q: Does -- has the land -- has there been a change to this land since 2001, which is the date of

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this aerial?
A: Yes.
Q: Has there been a residential development constructed since then?
A: Yes.
Q: What would that be --
A: Well --
Q: -- in proximity to the landfill?
A: Well, there's several.
Q: Okay.
A: First of all --
Q: And we're not contending these are within 1,000 feet, okay?
A: This is the Grand Oaks PUD (indicating) and all of this now is developed, this whole area. There are hundreds of homes now here. There's a public park with -- I think it's a city park with a gymnasium that is located here (indicating) in this general area and -- and then there's development all back through here now. This is called Hunt Club. This was the first phase of Hunt Club and now it's -- it's been developed all back in here and actually now connects over to this road (indicating). And then there's a development down here that

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is by Centex in Carolina Bay, I believe, and it's -- it's expanded dramatically. In fact, it's -- it's expanded up into this -- I believe it's expanded up into this industrial land use area. It's all -- I -- I can't say for certain. I know that there's interconnectivity now back out to this area and so there's -- I'm just speculating that may have been rezoned residential (indicating).
Q: Okay.
A: Again, there's another development over here called Fulton's Landing. There are apartments here now, several other uses.
Q: Mr. Bush, does this 2001 aerial reasonably depict the condition of that land that it shows as of the time of the first application, which is in July of 2007?
A: No.
Q: Does it depict the condition of the land accurately as of the date of the issuance of the first permit in January 2008?
A: No.
Q: Same question as to the issuance of the permit after it was vacated on September 1, 2007?
A: No.

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Q: Thank you. Mr. Bush, has Grand Bees Development obtained what is commonly referred to as "entitlements" with respect to this property?
A: Yes.
Q: What would those be?
A: Well, the -- the primary entitlement for us is the zoning and it's -- and it was -- it was properly entitled for our use when we purchased it, so it was zoned residential. So that's the first step for entitlement. And then the next step would be site plan approval, to confirm that what we want to develop there -- that the zoning allows us to do what we would like to do there and so we -- we make that determination through the site plan approval process. Then the third level of entitlements would be permits, a permit to construct. And we get these permits from -- from various agencies, from local agencies, from state agencies, in some cases federal agencies. And so that would be the last step for entitlement.
Q: As of today, approximately how much money does Grand -- has Grand Bees Development, LLC, put into this project? It acquired it for over

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four million dollars in November 2004. What -- what does it have in this property?
A: We have an -- an additional four million dollars, at least, invested in it.
Q: Does the proposed expansion taking this landfill up 90-plus more feet and expanding it by the acreage that's been described affect your ability to market it?
A: Yes, it will.
Q: What effect will it have on the value of that land?
A: If -- if -- if we can develop it, meaning if -- if a builder -- if someone will buy houses there, then it would be a very low price point. So it would have a significant impact on, you know, the economics of this -- this piece of property.
Q: Is the expansion that's described in the application that was permitted compatible with the current land use that you have?
A: The new application, the --
Q: Yeah, that landfill, the expansion of the C&D mound.
A: I don't believe so.
Q: And is it acceptable and consistent with your

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intended future land use?
A: No.
MR. WALKER: One moment, Your Honor. That's all I have at this time, Your Honor.
THE COURT: Okay. Thank you. Ms. Williams.
MS. WILLIAMS: I just have a few questions, Your Honor.
MR. BUSH - CROSS-EXAMINATION BY MS. WILLIAMS:
Q: Hi, Mr. Bush, how are you?
A: I'm fine. How are you?
Q: Good. I believe in the site plan, I think it was Petitioner's Exhibit Number Eleven --
MR. WALKER: It's right here. This right here (indicating).
MS. WILLIAMS: Yeah, this one?
Q: I think it was said that this is a 2006 site plan; is that correct?
A: I think so, yes.
Q: Okay. To your knowledge, have there been any actual residences constructed on that property --
A: No.
Q: -- since 2006?
A: No, there have not.

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Q: Okay. I believe you testified that whenever Grand Bees purchased the property that -- that you-all knew that there was a landfill there; is that correct?
A: That's correct.
Q: Okay. And you took a chance and you bought the property anyway, right?
A: We purchased the property.
Q: Right. So in purchasing the property, did Grand Bees realize that there was a possibility that the landfill, the design of the landfill could change; is that correct?
A: That's correct.
Q: And you purchased the property anyway, right?
A: Yes.
Q: I think I heard you testify, also, that Grand Bees or your company owns other property that's adjacent to a landfill.
A: I did not testify to that.
Q: Okay. But do you -- does Grand Bees have property that's adjacent to a landfill?
A: We do.
Q: Other property?
A: Yes.
Q: And at the time that you bought that property

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was the landfill already there?
A: Yes.
Q: Okay. So Grand Bees is familiar with issues concerned with buying property close to a landfill; is that correct?
A: Yes.
Q: Okay. And you testified to the noise and dust, some issues that are associated with being close to a landfill; is that correct?
A: Yes.
Q: Okay. And are you aware that bulldozers and other landfill equipment can be filtered with directional backup alarms to minimize noise?
A: No.
Q: You didn't know that?
A: Huh-uh (negatively responds).
Q: And are you aware that the permit for the Grand Bees C&D landfill, that it requires dust control?
A: I'm not aware of that.
MS. WILLIAMS: I don't have any further questions.
THE COURT: Thank you. Charleston County?
MR. FERRARA: Mr. Bush, I'm going to come out of the corner here a little bit. I'll try not to get too close to you, though.

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MR. BUSH - CROSS-EXAMINATION BY MR. FERRARA:
Q: Mr. Bush, you testified about your planning efforts and you identified several areas in a site plan. You called it a "land plan approval" and I believe it's Exhibit Number Eleven and you refer to areas as eight, nine and ten; is that correct?
A: Yes.
Q: Is that on this board right here?
A: It is.
Q: Would you mind just pointing to, one more time, where you're referring to areas for eight, nine and ten?
A: This area over here (indicating).
Q: Okay. All right. And that is the area that's closest to the County's property, right?
A: Well, phase seven is, also --
Q: Okay.
A: -- about the same --
Q: Good.
A: -- approximate.
Q: It's your testimony today that you thought when you first bought your property next to the landfill that the landfill would probably be closed by the time you got to develop areas

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eight, nine and ten, right?
A: Yes.
Q: So you gambled because you thought by the time you got there in your development, there wouldn't be a landfill anymore, right?
A: We -- that's right.
Q: And so -- but you weren't sure that the County was going to close that landfill when you got around to the time to develop sections eight, nine and ten, though, were you?
A: Well, we weren't really sure exactly according to the market when we would get there.
Q: Okay. And, as you sit here today, you now understand that the landfill might not close anytime soon; is that correct?
A: It appears that way.
Q: And isn't it true that you just recently went to the City of Charleston to get an amendment to your development guidelines --
A: Yes, that is --
Q: -- which is Exhibit Number Three?
A: That is correct.
Q: And this was done in February of this year, right?
A: That's correct.

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Q: So in February of this year, you had full knowledge that the County had full intention to utilize that facility, correct?
A: Yes.
Q: And so at this point in time, you're not sure whether the County may make other amendments or not.
A: That's correct.
Q: Okay. So when you went to the City of Charleston just several weeks ago to get an amendment to your development guidelines, isn't it true that the City of Charleston had to make a finding about compatibility?
A: As it related to the zoning of the property, yes.
Q: Correct. And isn't it true that the City also looks at adjoining land uses to determine compatibility when they amend zoning and enact zoning, just like Charleston County?
A: Probably do.
Q: Okay. And so in your experience, you knew full well that you had to submit plans and amendments, that you had to convince the City of Charleston that it was compatible with the area, didn't you?

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A: I'm not -- I mean, I'm not sure exactly what you're asking. We had to make sure it was compatible with our zoning. What we submitted had to conform with the zoning that we had on the property.
Q: Sure. Would it surprise you that the City of Charleston's zoning ordinance for planned developments requires a provision that says that it will ensure compatibility of developments with surrounding areas?
A: No, it wouldn't surprise me.
Q: And so would it surprise you that the City then, in fact, had to make that determination based on your request and they said it was compatible with surrounding development in the area?
A: Well, that provision is one of the most important provisions that, as a land purchaser, that -- that any City has.
Q: Exactly.
A: I expect them to protect my property rights if someone's rezoning next to me.
Q: And that's been your experience in developing property in the Southeast; is it not true?
A: That's correct.

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Q: And you rely on zoning ordinances and those zoning officials to make those determinations, don't you?
A: I do.
Q: And in this instance the City of Charleston has allowed you to amend your plan development guidelines with the understanding that there's a landfill next to it; isn't that true?
A: That's correct.
Q: Now, you just testified, though, that you felt that it was not compatible with the landfill and/or your future uses; is that not true?
A: I feel like the modification to the permit is not compatible.
Q: Okay. But the modification that we're talking about was approved in September of 2011, it was challenged by you, you got a public hearing and public comment opportunities well before that was issued and this is all occurring before you went to the City of Charleston to get a planned development amendment; is that -- is that not true?
A: Yeah, but you're twisting things around. I went to the City of Charleston to get a modification because I had a -- a -- finally

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had someone who was willing to buy some property from me over on the other side of the wetland far removed from the landfill. And so in order to -- and it was an apartment developer. And in order to sell that property, I had to rezone a piece of property from single-family residential to multi-family, and that was the purpose of the application.
Q: You testified with regard to Exhibit Number Thirteen -- which is an aerial you've identified from 2001; is that not true?
A: That's correct.
Q: Okay. And in this aerial you pointed out differences between what exists on the ground today versus what existed in 2001; is that not true?
A: That's true.
Q: Okay. In 2007, you challenged a permit modification application by the County to DHEC; is that not true?
A: That's true.
Q: And in 2007 did you raise these issues before DHEC?
A: Which issues, specifically?
Q: The issues you just testified about with regard

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to Exhibit Number Thirteen.
A: I --
Q: We can go through them again, if you'd like.
A: No, I know what you're asking, but I'm just -- I don't recall specifically if we -- which issue are you asking about specifically, though --
Q: In Exhibit --
A: -- that I --
Q: In Exhibit Thirteen, you testified earlier about the changes in zoning and developments that were in the area of the landfill. My question is: Did you raise those issues in 2008 and in 2009 on your first challenge to the permit modification?
A: Which one specifically?
Q: Well, we'll pick -- any one. Which one would you like to? Identify the things that you believe are different from 2001 and today.
A: I believe that there are homes built all -- all over that map.
Q: Okay. And did you raise that issue?
A: I don't recall.
Q: Okay. You also challenged the most recent modification that was granted in September. As

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a part of the public hearings and public comments sections, did you raise those issues to DHEC?
A: I think -- I believe that we have always been concerned about the age of this material in these applications.
Q: Okay. And so you've made those claims to DHEC as part of your challenge to this permit --
A: I don't recall.
Q: Okay. You talked about some concerns you had generally with the landfill and you mentioned some visual problems, you mentioned the life of the landfill, which you've already talked about, and you talked about noise and dust. Now, you are -- you were familiar when you bought the land that there was heavy equipment operating at the landfill; isn't that true?
A: That is true.
Q: And those same noises that you're talking about, whether the elevation is 68 feet, 50 feet, 100 feet, 150 feet, are going to be the same noise; is that not true?
A: That is not true.
Q: So the noises are different?
A: They're very different.

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Q: Okay. Tell me how.
A: Well, if you drive down an interstate in Atlanta, Georgia, they build sound walls to protect the houses behind them as a barrier. If that interstate were above that sound wall, that sound would travel through the neighborhood. Now, when you build this mound above the tree line, it's going to travel into that neighborhood, I don't care what you do.
Q: Okay.
A: It's unavoidable. The height of that landfill is critical to my ability to -- to develop a neighborhood for people to live there.
Q: Okay. And is your belief, then, that because the height potentially could get to 168 feet, it's going to increase the noise?
A: Oh, yes.
Q: Okay. When you develop the property, will you have trucks going down the streets in your neighborhood?
A: I will.
Q: Will they create noise?
A: They will.
Q: Will there be noise when you're developing the houses?

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A: Yes.
Q: Will there be noise when garbage trucks run through your development?
A: There will be.
Q: And will that be at grade?
A: It will be.
Q: And be right in front of the house, won't it?
A: It will be.
Q: So the same noise you're talking about that will exist next door will exist in your development; is that not true?
A: Well, I find a homeowner accepts the noise of a trash truck picking up his trash once a week. I've never had a homeowner complain about that. In fact, they're grateful for the fact that they come and pick up their trash once a week. And so that noise, I've never had anybody complain about that noise.
Q: But you do think a homeowner who buys property next to a landfill is going to expect it to be quiet, then?
A: Well, it depends on the design of the landfill, as I mentioned earlier.
MR. FERRARA: One second, please. Your Honor, no further questions. Thank you.

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THE COURT: Okay. Thank you. Redirect?
MR. BUSH - REDIRECT EXAMINATION BY MR. WALKER:
Q: Mr. Bush, I'm going to hand you what's been admitted as Petitioner's Exhibit Five. This is stapled together, a set of materials related to the public hearing comment beforehand. What I'd like you to do is turn to the last two pages of Exhibit Five.
A: (Witness complies.)
Q: Do you have that in front you?
A: I do.
Q: Is that a letter from Mr. Khan to Mr. Eleazer at DHEC?
A: It is.
Q: In that letter, does Mr. Khan set forth a number of concerns and objections about the draft permit?
A: Yes.
Q: What is the date of that letter?
A: May 16th, 2011.
Q: If you would, turn to page two of that letter.
A: (Witness complies.)
Q: You were asked some questions about whether there had been any comment about the age of

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materials and I'd like you to publish or read the first sentence, starting on page two. Actually, the first two sentences.

A: "In addition to the above, it appears DHEC is prepared to issue a permit based on permit application materials which are severely outdated. DHEC is prepared to issue a permit based on data from 2007 and even much older in some key areas, such as neighboring parcels, neighboring uses and zoning."

Q: Thank you. The other property that you have that's in the vicinity of a landfill, is it right next door or is there a buffer?

A: Ask me that question again, please.

Q: On cross-examination you were asked about another project that's in the vicinity of a landfill. Is that up against it or is there a buffer?

A: There are a couple of properties adjacent that actually border the landfill. One is a property called Hunt Club and the other one is a property called Long Savannah.

Q: No, no, I'm not talking about -- I'm talking about your other projects. I understood your testimony to be that there was another project

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that Stokes Land Group had done that was in the vicinity of a landfill.

A: Oh, oh, the other property. The other property, okay, yes. That's in Myrtle Beach. I'm sorry.

Q: Okay. And is there a buffer between the project and the landfill?

A: There's a natural wetland.

Q: Is it a significant size?

A: It's huge. It's several thousand feet.

Q: When you were asked about the 2012 amendment to the PUD in order to change zoning, would you show the Court, based on Petitioner's Exhibit Eleven, where the zoning was changed?

A: It was right here (indicating).

Q: That would be -- in relation to the landfill, is it the farthest?

A: It's the farthest.

Q: Okay.

A: And then we also modified this from R-1 to R-2.

Q: And you're pointing to land that's close to the landfill.

A: That's correct.

Q: And why did you do that?

A: To allow for smaller lots.

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Q: Was that in response to the landfill?

A: Yes, it is. In fact, it's -- it's kind of a plan B, in the hope that if we could find a market to sell homes, it -- it would be a lower price point and so we would develop smaller lots, smaller houses.

Q: Is that an alternative to try to salvage something out of this?

A: It's a potential alternative. It's not a guarantee.

MR. WALKER: All right. Thank you, Your Honor. That's all I have at this time.

THE COURT: Thank you. Do we have anything further for this witness?

MS. WILLIAMS: No, Your Honor.

MR. DAWSON: No, Your Honor.

THE COURT: Thank you. And at this point, we're going to take a ten-minute break before we proceed to the next witness, Mr. Walker.

MR. WALKER: Thank you, Your Honor.

(Off the Record from 11:44 a.m. to 12:08 p.m.)

THE COURT: Mr. Khan, I'm assuming you're going to --

MR. KHAN: Yes, Your Honor.

THE COURT: Okay.

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MR. KHAN: Thank you, Your Honor. Your Honor, Petitioner calls John Lester to the stand.

JOHN S. LESTER, having been duly sworn, testifies and examines as follows:

MR. LESTER - DIRECT EXAMINATION BY MR. KHAN:

Q: Good morning, Mr. Lester.

A: Good morning.

Q: Can you state your full name for the record?

A: My name is John Stewart Lester.

Q: Thank you. And where are you employed, Mr. Lester?

A: I'm employed at HLA, which is a land planning, civil engineering, landscape architecting (sic), land plant -- or land surveying firm.

Q: And do you possess any degrees?

A: I am a graduate of the University of Arizona with a Bachelor of Science and Civil Engineering.

Q: And are you a licensed professional engineer?

A: I am. And also registered land surveyor.

Q: And what states have you been licensed as an engineer in?

A: I was originally licensed in Arizona and then Georgia and South Carolina.

Q: And how long have you been a licensed engineer

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in the State of South Carolina?
A: Since '82, I believe.
Q: And I believe you said earlier -- are you a registered surveyor?
A: Yes, sir.
Q: And how long have you been a registered surveyor?
A: About 18 years.
Q: And have you been practicing in the field of civil engineering since you graduated from college at the University of Arizona?
A: With the exception of military duty, I've been continuously employed as a civil engineer and land surveyor.
Q: Okay. So you picked up with the practice after the military?
A: Yes.
Q: You mentioned HLA, Inc., and I believe you said it's a land planning, engineering firm.
A: Correct.
Q: Does that get any more specific? Are there any other areas of practice, if you will, that you concentrate in?
A: We do single-family residential developments, commercial developments, apartment complexes.

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We do parks. We do light industrial sites. We just recently finished off the Boeing IRC facility in North Charleston. We prepare stormwater reports, land plans, drainage plans, water/sewer plans, street layouts. We do grading and drainage. We do inspections of the same.
Q: And do you, John Lester, work in all those facets of the practice?
A: I have, yes.
Q: Okay. And do you supervise in any of those activities today?
A: Yes, I do.
Q: And what is your current position with HLA?
A: I'm the president of the company.
Q: And how long have you been the president?
A: Since 1997.
Q: How long has HLA been around?
A: This is our 25th year.
Q: You mentioned many things that the firm does. Is there anything that the firm just doesn't do?
A: Yes. We are kind of site designers and we go up to what's referred to as the five-foot line on the building or the structure. We don't

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usually get inside of structures. And we don't do geotechnical work, though when I was in the Army, I was -- had further instruction in terrain analysis and soil analysis.
Q: So based on your description, it appears HLA does a lot of the planning and entitlements of property up until the point of construction?
A: That's correct. And we get through construction, too, usually. Certain items have to be witnessed and approved, pressure tests on the water and sewer system. And we prefer to go out and observe the testing on the subgrade and base material before the asphalt goes down on the streets.
Q: And, of course, this depends on what the client has tasked you with and the project you're working on, but do you also assist clients with obtaining certain approvals through local governments?
A: Yes, sir.
Q: And would that be primarily in the land planning process and engineering of sites?
A: That's correct.
Q: And, just generally speaking, what types of approvals would you assist with?

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A: We get subdivision approvals and land plan approvals. Referred to the IRC facility, my partner had worked very closely with Charleston County in the economic development and we put together a package for the County on that regard.
Q: What about AutoCAD, John? What is AutoCAD?
A: It is a computer system used to generate drawings, and it's very accurate.
Q: Are those to scale?
A: They are perfectly to scale.
Q: And do you, as an engineer, use AutoCAD in your daily activities?
A: Yes, we do.
Q: Is that widely respected in the industry?
A: Yes, it's more or less the industry standard. There are probably a couple of others that are used universally, but AutoCAD seems to be widely accepted locally here.
Q: And does AutoCAD allow you to produce scale drawings of documents?
A: It does. We use it to do our subdivision planning and our street designs. We use it in all of the construction documents that we prepare.

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Q: And do you, as an engineer, rely on scaled drawings in your practice?
A: We do.
Q: What about the program called SketchUp; are you familiar with that?
A: Yes. It's a software that operates inside of the AutoCAD platform and it's used to create three-dimensional drawings. And we use it often when clients refer -- request it so that reviewing boards, which are usually composed of laypeople, makes it easier to see if it's in a three-dimensional form. And it's also convenient for us to help look and see: are there deficiencies, are there holes where there shouldn't be holes, is there a depression?
Q: So SketchUp works inside of AutoCAD?
A: That's correct.
Q: And it brings to life, if you will, two-dimensional AutoCAD drawings?
A: Yes.
Q: Okay. And is that widely used in the industry, as well?
A: It's becoming very common.
Q: And I believe, Mr. Lester, you said you've been an engineer for approximately 40 years.

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A: That's correct.
Q: How long have you been around land surveying?
A: The same amount of time.
Q: I notice you had mentioned that you have been a registered survey for -- registered surveyor for a little less time. Why is that?
A: That's correct. When I was in Arizona, if you were registered as a civil engineer, you were automatically registered as a land surveyor. No one questioned the use of your stamp on plans. But there's become a movement since that all surveyors doing property surveys should get a stamp separate from engineering, that should be a registered land surveyor. So I've taken that test and put it on the list of accomplishments.
Q: But have you been around land surveying as long as you've been an engineer?
A: Oh, absolutely. In the beginning I worked as a draftsman and I worked as a field hand on survey crews.
Q: And would you say that engineering and surveying go hand and hand?
A: Definitely.
Q: I want to discuss with you briefly the land

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planning aspect of HLA, Inc. You had mentioned several different facets of assistance you give to property owners, if you will. Can land planning take on different forms with a potential client or a client?
A: Yes, there are varying degrees of it. Some people come in and have no idea of what they want to do with land other than create a development, and so we give them guidance. And other times we have clients that come in who know very well what they want and it's very easy to work with them, usually. Sometimes, though, they can be very difficult; they know so much, you know.
Q: And so it just varies by project.
A: It does.
Q: And so if I was potentially going to purchase a piece of land and came to a firm like yours and needed assistance and consultation with what I could do with my land, is that something you could -- you could help with?
A: Absolutely. You know, we -- we look the property up and we find out what it's zoned, what jurisdiction it's in, if it's the County or the City, and find out what the allowable

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land uses are and advise the client. And he makes decisions on what he'd like it to be and then we try to comply with that.
Q: And, likewise, if someone already owned a parcel of land, could they come to a firm like HLA and hire you to help them develop it?
A: Yes, they could.
Q: And would that go from all various stages, knowing what they can do with the property; would you tell them that?
A: Yes.
Q: And entitlements, things of that nature?
A: That's correct, yes.
Q: Do you assist with rezonings?
A: We do help out on rezonings.
Q: And annexations?
A: Yes.
Q: Would you assist that landowner with the approval -- necessary approval processes through the local governments?
A: Yes, that's very common for us to do.
Q: Do you present on behalf of clients to -- to local governments at council meetings and site design --
A: Yes, we do.

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Q: -- review committees?
A: Right.
Q: Okay. John, are you frequently called upon to -- your firm, is it frequently called upon to conduct surveys?
A: Yes, sir.
Q: Is it -- are you frequently utilized to review and analyze surveys?
A: Yes, we do.
Q: What about for engineering drawings; do you routinely prepare engineering drawings?
A: Yes.
Q: Do you frequently review and analyze those drawings?
A: Yes.
MR. KHAN: Your Honor, at this time Petitioners would tender Mr. Lester pursuant to Rule 702 as an expert in the areas of land surveying, use of AutoCAD, preparing and interpreting engineering drawings, and as a civil engineer as it relates to those above matters.
THE COURT: Okay.
MR. KHAN: We feel and believe that his technical and specialized knowledge of these areas will assist the Court with an understanding of some

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of the matters which are in dispute today.
MS. WILLIAMS: Your Honor, I'm not -- I don't object to Mr. Lester as an expert in those areas, but I would appreciate if Mr. Khan would be more specific as to what areas that Mr. Lester will be illuminating today. Thank you.
THE COURT: Okay.
MR. KHAN: Sure. Your Honor, he's going to talk about a survey that he conducted on the common boundary. He's going to talk about his measurement of 1,000 feet from that boundary. He's going to talk about related documents as relates to those I just mentioned and some other engineering drawings based on his review of them.
THE COURT: Okay.
MS. WILLIAMS: Your Honor, DHEC would just like to stipulate, if we could, if Mr. Lester's going to testify today in terms of whether the landfill is within 1,000 feet of a residence -- which is part of the regulation, it cannot be within 1,000 feet of a residence -- we will stipulate that it is -- that there are proposed and planned residences at this -- at this property. And I just don't know beyond that

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what Mr. -- I mean, we admit that there are proposed and planned residences, that there are no actual residences at this property. So I just want to stipulate to that much. If he was going to testify that the landfill is within 1,000 feet of proposed and planned residences, we stipulate to that.
THE COURT: Okay.
MR. DAWSON: Your Honor, County has the same position. We don't question Mr. Lester's qualification. I guess my issue goes more to the rule and that is Rule 702, which talks about assisting the trier of fact to understand the evidence or determine a fact at issue. I think what both sides are saying is we don't believe there's a fact at issue at it relates to the 1,000 feet. We all agree there are no homes there, but there are homes that are planned and those homes that are planned are within 1,000 feet. So I don't believe he can assist you in understanding that fact any better because that fact is based on the evidence that is already admitted. Equally, from the regulatory perspective, which I don't believe he's going to testify as to his

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understanding and conclusions of the regs and the law, the issues as relates to land surveying, AutoCAD and preparing and interpreting engineering drawings aren't at issue in this case, either. And so, once again, I don't know how it's going to assist you in determining any issue -- a fact at issue. So, with that said, Your Honor, I have no objections to him being admitted as an expert. My concern is I'm not sure what he's going to testify to that's going to assist you in a matter that we all have stipulated exists on the ground.
MS. WILLIAMS: Your Honor, may I just --
THE COURT: Go ahead, Ms. Williams.
MS. WILLIAMS: -- make one more comment, is that, you know, DHEC -- and I think that the County raised this earlier -- is that the issue of "residence" and the definition and meaning of "residence" is one of law for your determination. It's not one of fact. So I don't believe that Mr. Lester can guide you in that area. That's just an additional comment on that. Thank you.
MR. KHAN: Thank you, Your Honor.

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Thank you both for the stipulation.
Your Honor, Mr. Lester was going to testify as to the 1,000-foot issue, as well as a couple other items, which I'll mention so we can be clear. And if DHEC and the County are willing to stipulate that there are residences contained within 1,000 feet and I suppose to the exact number, as well as the admission of our exhibits so the Court can review them, I wouldn't probably have a problem as to that. We're not talking one residence. Mr. Lester was going to tell you how many.
But he's also here to talk about issues with the consistency, with the buffer screening as it relates to the drawings prepared for DHEC by the County, and he's also going to speak about the consistency with the surrounding environment, as well as the future development of the area. Those facts I think are still at issue.
THE COURT: Okay. And I think the stipulation that Ms. Williams and Mr. Dawson referred to was that there are proposed residences within that 1,000-foot barrier.
MR. KHAN: Correct.

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THE COURT: I'm sorry, boundary.
MR. KHAN: Correct. Sorry, Your Honor. I was just conferring with Mr. Walker. I don't -- I don't want to play semantics, but is it -- are we agreeing that they're planned or they're proposed?
MS. WILLIAMS: Well, I think that -- I think that your witness this morning, Mr. Bush, testified that there are no residences --
MR. KHAN: Correct.
MS. WILLIAMS: -- at the site.
MR. KHAN: Correct.
MS. WILLIAMS: So, no, DHEC is not stipulating that there are residences. We're stipulating that there are proposed and/or planned residences on the property. Not on the property, but proposed or planned residences to be built onto the property.
MR. KHAN: Okay.
THE COURT: I think the testimony bears that out. But I am going to allow you to use this witness as an expert to testify as to the other issues.
MR. KHAN: Thank you, Your Honor.
MR. DAWSON: Your Honor, if I may.
THE COURT: Yes.

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MR. DAWSON: I just want to make sure he -- Mr. Khan added one item to the list when he got up and spoke again and that was he's added the issue of consistency. I suspect he's going to try to elicit fact-based testimony of consistency. Obviously, the legal component of that is only in the purview of the Court. And so I just, once again, wanted to alert the Court to the objections I'll be making if they're not fact-based.
THE COURT: Okay.
MR. DAWSON: Thank you, Your Honor.
THE COURT: Thank you.
You may proceed.
MR. KHAN: Your Honor, do we need to address our exhibits? Do we have any direction on what we want to do with our exhibits that show the 1,000-foot boundary? I think they're instructive for the Court on this issue about how many residences we're talking about, proposed residences within that 1,000 feet. We would -- if we're going to stipulate to it, we would prefer that the exhibits at least be admitted into evidence.
THE COURT: Okay.

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MS. WILLIAMS: Your Honor, I believe -- I'm just going by the trial brief. I think he said there were 130 planned residences.
Is that correct, Jamie?
MR. KHAN: I think that's roughly it.
MS. WILLIAMS: Okay. DHEC stipulates to whatever number Mr. Lester's going testify to that is within the 1,000-foot boundary. We don't have any qualm or question about how many planned residences there are.
MR. DAWSON: Same -- same here, Your Honor, for the County.
MR. KHAN: Can we enter Exhibit Twelve and Exhibit Eighteen?
MR. DAWSON: I have no objections to those exhibits.
MS. WILLIAMS: Sure, no objection.
THE COURT: Okay. They're admitted with no objection.
MR. KHAN: Thank you, Your Honor.
And, Your Honor, if I may just --
(Petitioner's Exhibit Numbers Twelve and Eighteen were admitted into evidence.)
Q: Mr. Lester, we briefly talked about HLA's involvement in land planning before. Do you remember that?

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A: Uh-huh (affirmatively responds), yes.
Q: And I think you went through it fully already, but does HLA assist in all aspects of land planning?
A: Yes, sir, we do.
Q: In doing a full engineering and land planning practice, like you described, do you need to be familiar with and apply local zoning and development regulations?
A: Yes, sir. It's required on every project. You have to get approvals before you can build anything.
Q: So if I came to you and I was located in Dorchester County and I said, "HLA, I want to do this," would you then have to go consult the Dorchester County guidelines for that?
A: We do. And then we usually try to set up a meeting with the people involved, the planning director or perhaps the engineer for the district.
Q: And I assume that based on the jurisdiction you're working in, you may also then have to deal with another layer of City approvals.
A: That's correct.
Q: And so by doing this work over the past years,

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as you described, have you become accustomed to doing such?
A: Yes.
Q: And do you routinely have to incorporate those requirements in the plans that you're preparing for that government agency?
A: Yes, sir. Well, they're prepared for their review. We prepare plans for developers, like Mr. Bush and other people.
Q: And if your plans that were prepared for your client were lacking as far as compliance with the zoning and land development regulations, would those be approved?
A: Usually they're not.
Q: Would they be rejected?
A: That's always been the case for us.
Q: And what do you then have to do, go back through and --
A: We revise the plans and make them compliant and make sure that it's okay with the client.
Q: And, generally speaking, what -- what types of requirements are we talking about here? I mean, are we talking about sizes of roadways? I mean, can it be anything?
A: It could be any number of things, you know.

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The process now involves trees. We have to go get tree surveys. If you're going to take down a tree that's larger than 24 inches in diameter at breast height, then you have to get permission from them. You have to go to a special board to remove those trees. So there's just all sorts of different layers of bureaucratic and governmental involvement.
Q: What about screening, is that a frequent matter to be addressed?
A: Yes, it is. Almost all of the ordinances require some sort of landscape screening around the parking and the buildings.
Q: What about buffers? Do you frequently deal with that?
A: We often have to deal with buffers.
Q: And does -- is that in various contexts, whether it's a roadway, a building, things of that nature?
A: Yes, and the zoning.
Q: And do they all have different requirements based on --
A: They all have different requirements.
Q: Mr. Lester, have you reviewed the engineering plans for the Bees Ferry Landfill that were

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submitted with the permit application, Exhibit One?
A: Yes, sir, I have.
Q: Okay.
MR. KHAN: I have a larger set of the same engineering drawings that are contained in there.
MR. DAWSON: I'll accept it.
MR. KHAN: Your Honor, these are just a larger version of the plans and application.
THE COURT: Okay.
Q: There's about 15 sheets here, Mr. Lester. Have you taken a look at most of these?
A: Yes, I have.
Q: Okay. And, again, you frequently do review engineering drawings, correct?
A: Yes, sir.
Q: Okay. Before we get to that document, are you, generally speaking, familiar with the Charleston County landscape buffers and screening portion of the ZLDR, Zoning and Land Development Regulations?
A: Yes, sir, I have seen it.
Q: And I would imagine that you deal with many different local governments.

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A: Yes.
Q: And I don't expect you to have each government's requirements memorized. That would probably be unfair.
A: There are too many to memorize them all.
Q: Okay. When you're faced with a particular project, if someone came to you and said, "I'm doing something in the unincorporated portions of Charleston County," would you then go consult those regulations?
A: Yes, sir, that's the procedure.
Q: Okay. Earlier we stipulated to the admission of Chapter Nine of the ZLDR, which is Petitioner's Exhibit Ten. You can take a look at it. But does that look familiar to you?
A: Yes, sir, it does. This is Charleston County's development standards.
Q: Without getting into the specifics, what are the general -- how do -- excuse me. How do you generally go about knowing whether or not you need buffers and landscape screening?
A: Well, you go to the code and, you know, look there first and you check. And, you know, if you've got parking, you know you're going to have to have a screen around parking. If

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you've got property that's near another piece of property of a different zone, you have to check and make sure that you're buffered properly against that or, if you're doing work on certain streets that they consider major streets and routes, they have overlay districts and different set of standards apply to them. But we go to these charts and then go ahead and determine what the buffer requirement is based on the zoning or whatever it is that we're looking at at the particular case.
Q: Okay. So depending on what you're doing, whether you're building a road or a parking lot, depends on what the end result is what you need to do under the regulation.
A: Correct.
Q: Okay.
A: And in this case with this piece of property, the Bees Ferry Landing being zoned industrial and adjacent to a residential property, I believe that this calls for 100-foot landscape buffer.
Q: Okay. So let's step back. When you're dealing with a buffer or landscape screening in between two different uses, is there a provision for

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that in --
A: Yes, sir.
Q: Okay. Can you find that? Do you know where that is?
A: That should be in Chapter Nine.
Q: So -- let me ask my question first.
A: Sure.
Q: Have you located a certain provision?
A: Yes.
Q: What provision is that?
A: It's Use or Zoning of Adjacent Site.
Q: Okay.
A: And Proposed Use. So what you do is you look up your proposed use, versus the adjoining property. You look for whatever zoning is there and match your chart up.
Q: Does -- does that chart that you're looking at -- and that is 9-31, is that what you're looking at?
A: That's the page, yes.
Q: Okay. Does it specify an industrial use?
A: Yes, sir, it does. And it has two types, Type 1 and Type 2. And I believe that this would be a Type 2. Type 2 is waste-related uses, resource extraction uses, recycling centers.

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And being a landfill would seem to fit in that category. And then Residential Types 1, 2 and 3 all require the same buffer, an F-type buffer. And --
Q: Okay.
A: -- there's another chart that defines what's required in an F-type buffer.
Q: Okay. So what you did on that chart is you went down to industrial use --
A: Correct.
Q: -- slid over to residential.
A: Right.
Q: And what letter's required for all those?
A: "F."
Q: Okay. And that's whether it's -- is that whether it's any type of residential zoning in that chart?
A: No, it -- it varies. But for the type of use that is on Mr. Bush's property, it's an "F."
Q: Okay. And what do you then do with that "F"?
A: Well, you come down and read the buffer type.
Q: Okay.
A: And this one says it has a minimum buffer depth of feet from the property line of 100 feet. And in that 100 feet you must plan -- plant

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nine canopy trees, 11 understory trees and 50 shrubs. This is per 100 feet.
Q: Per 100 feet. And how many -- how many canopy trees was that? I'm sorry.
A: It says nine.
Q: So every 100 linear --
A: Every 100 horizontal feet you'd have to have nine canopy trees --
Q: Okay.
A: -- and 11 understory trees.
Q: Okay.
A: You put together a plan. The zoning administrator, or his aide or her aide, will check and make sure that the landscape plan has this.
Q: And I know we're talking about Charleston County Zoning Land Development Regulations, but do other municipalities and counties have similar requirements?
A: Yes, sir.
Q: Okay. And when you're submitting a proposed plan to that local government, are you required to actually show those, depict it on your plan?
A: Yes, sir.
Q: Earlier I asked you if you've reviewed the

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engineering drawings which are contained in Petitioner's Exhibit One -- and, again, we're looking at a larger set here -- and I believe you said you have.
A: Yes, sir.
Q: Okay. We're referring to page marked G-02 and it's labeled "buffers." Do you see that?
A: Yes, sir, I see it.
Q: And just so the Court can see, as well -- I'll hold it for you -- but where -- where is the C&D mound, Mr. Lester?
A: Here is the C&D disposal area (indicating).
Q: You can stand up. And where, generally speaking, is the Grand Bees Development property?
A: Grand Bees is over here (indicating), over in this area.
Q: Okay. And what does it say at the top of this engineering drawing?
A: "100-foot minimum buffer from property line to waste per SC Solid Waste Rules R61-107.11."
Q: Okay. Have you -- have you looked up that requirement?
A: Yes, sir, I have.
Q: And is that -- is that -- do you understand

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that to be a DHEC requirement?
A: Yes.
Q: Okay. Based -- based on your review of these engineering drawings -- this whole stack, if you want to take a look through it -- have you found the buffer and landscape screening which we just talked about in the County code?
A: No, sir, I have not. And I don't find a reference to a landscape plan, and a buffer does not have to be necessarily landscaped. You know, it's a separation.
Q: What are you saying, the buffer that they designate?
A: Well, they're -- they're talking about a buffer here, which when I read this document, I did not even find the word "buffer" in that document. It's just -- it has to have 100 feet from the property line before you get to the landfill portion.
Q: Okay. And you can take your seat. Thank you. Based on your further review of these documents, what do you know to be in that 100 feet right now?
A: There is a road and some vegetation.
Q: Okay. And so nowhere in the County's

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application to DHEC have you found the application of Chapter Nine of the ZLDR.
A: That's correct.
MR. DAWSON: Objection, leading.
Q: Have you reviewed the entire application, Mr. Lester?
A: I've looked at these plans. I find no reference on the plans to a landscaping plan.
Q: Have you located any of the landscape and screening requirements that we just looked at in the Chapter Nine of the ZLDR?
A: I have not seen that on these plans.
Q: Okay.
MR. KHAN: Your Honor, earlier we stipulated to the facts as to the 1,000 feet and the residence -- planned residences therein. What I'm holding here is Petitioner's Exhibit Seventeen and this is Mr. Lester's survey, which we didn't get to because of the stipulation. But in here are some pictures that he took at different survey points that I think may be relevant based on this buffer and landscaping issue. I can have him testify as to what he did to take these and then we can talk about whether or not there's an objection to the admissibility of it.

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THE COURT: Okay. Let's do that.
MR. KHAN: Sure. Why don't we come over here, Mr. Lester.
MS. WILLIAMS: Do we have a copy of that?
MR. KHAN: Yes, it's -- it's all been designated.
MS. WILLIAMS: Did you give us a copy?
MR. KHAN: No, we didn't. We identified it as available for inspection.
Q: Mr. Lester, just generally speaking -- we're looking at Petitioner's Exhibit Seventeen. What is this, just generally?
A: Well, it's an exhibit that shows the existing property line between Grand Bees Development and the landfill.
Q: Okay. Did your firm survey that boundary?
A: That is correct.
Q: Okay.
A: And when we did the survey, we found the monuments that had been referenced on the plat of record. We found them to be acceptably close dimensionally. And then we took photographs into the site from these various points along the line.
Q: Roughly can you tell by this document when those pictures were taken?

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A: This was just taken this year, early this month.
Q: Okay. Did you also do the same in 2009?
A: Yes, we had done this previously.
Q: Okay. And so these points, these arrows that say "number one," do they match up with picture number one?
A: That's correct.
Q: Okay.
A: It's as if you were standing at this point looking in this direction, that's the photograph that you would see -- or that's what you would see.
Q: Earlier in your testimony you referenced a road. Is that what is depicted in these pictures?
A: Yes, it's seen here (indicating) in most of the photographs -- all of them.
Q: Okay. And have you been out there yourself?
A: Yes, sir, I have.
Q: Is there any vegetative buffer in that 100 feet, that you can tell?
A: There is some vegetation. I wouldn't call it anything that meets the ordinance.
Q: Okay. And I'm looking at --

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(Off the Record)
Q: I'm looking at these pictures. Is this the vegetation, the existing vegetation that you're speaking of?
A: Yes, sir.
Q: Okay. We're talking about grass and things of that nature?
A: Yes.
Q: Okay. All right. Thank you.
MR. KHAN: Judge, Petitioners move to admit Exhibit Seventeen.
THE COURT: Okay. What's the purpose of the admission?
MR. KHAN: The purpose of the admission is twofold. One, it's his survey and, two, it accurately reflects the existence and view over this 100-foot buffer that Mr. Lester referenced.
THE COURT: Any objection?
MS. WILLIAMS: I do object, Your Honor. I mean, I think the fact that we have already stipulated that there are planned residences within the 1,000-foot buffer and we also -- I mean, I just don't see where that's going to help you make your decision. I do object.
THE COURT: Mr. Dawson?

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MR. DAWSON: Your Honor, our objection is the relevance of the document. Once again, it appears that what we're doing here is taking pictures for the purpose of trying to determine whether or not a buffer with vegetation exists. The County's already stipulated to the admissibility of the zoning ordinance. And the attempt here is to try to now bolster that position with these pictures. As I said earlier, it's for the Court to determine whether or not that ordinance applies, from a legal perspective. We've already stated, once again, that there is a buffer and he's testified that there's vegetation. Now, whether it rises to the level that's required under the ordinance or not is in your purview. I believe the purpose of this document is to try to draw that legal conclusion.
THE COURT: Thank you. And your objections are noted, but I'm going to allow him to --
MR. KHAN: Thank you.
THE COURT: -- place the document into the record.
MR. KHAN: Exhibit Seventeen.
(Petitioner's Exhibit Number Seventeen was admitted into evidence.)

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MR. KHAN: Sorry, Your Honor.
Q: Exhibit Twenty-five. Mr. Lester, do you recognize Exhibit -- Petitioner's Exhibit Number Twenty-five?
A: Yes, sir, I do. It was prepared by my office.
Q: Okay. What program did you use to prepare this?
A: That's in AutoCAD.
Q: Okay. Generally speaking, without getting into the detail, what -- what does Petitioner's Exhibit Twenty-five show?
A: What it shows in the -- the gray area is a portion of the landfill relative to some of the other features in the area. You can see trees of varying heights and, just as a point of reference, we have the round Holiday Inn, which is 160 feet -- 162 feet high. And this landfill will now be higher than one of the larger -- largest landmarks in Charleston. It's quite massive. Lower is the landfill height at the time that this was prepared, which is about 53 -- 52 feet, and then what had been previously proposed as the height for the landfill, which was 64 feet. So now the landfill's going to be raised 104 feet, which

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is rather significant. It's a visual impact in the area.
Q: What is this big feature?
A: That is the new Cooper River Bridge to scale representation. All of them are to scale.
Q: Mr. Lester, based upon the work you do with HLA and the work you've done for the past 40 years, do you feel that this expansion would be consistent with the future development of the area?
MR. DAWSON: Your Honor, objection, it's calling for a legal conclusion. That's the basis for this entire case is to determine whether or not the regulations and those ordinances have been applied and consistency is the standard that this Court is to decide.
MR. KHAN: And I'm not asking him if the permit is consistent with the local ordinance. We haven't talked about the local ordinance at all. All I'm asking him is, based on his experience, training and work in this field for the last 40 years, as an engineer who works for Grand Bees, would this mound, in his opinion, be consistent with that future development -- or compatible. I'm -- maybe I'm using the

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wrong term. Compatible. I don't know if that changes things from -- from their perspective. The word I'm looking for is "conform."
THE COURT: Okay. I'm going to allow you -- I'm going to allow him to answer the question. I mean, as to whether it's consistent, of course, ultimate decision rests with this Court --
MR. KHAN: Absolutely.
THE COURT: -- but I will allow him to answer that question.
MR. KHAN: Thank you, Your Honor. That was probably because I used the wrong word.
Q: Mr. Lester, going back, I asked you, based on all of your experience in this field, do you feel or do you have an opinion as to whether the proposed expansion of the landfill conforms with the future development of the area?
A: I think not. I -- I believe that it's too large vertically and it's a very significant feature on the landscape. This will be seen for quite a distance away.
Q: And, again, is Petitioner's Exhibit Twenty-five drawn to scale on AutoCAD?
A: Yes, sir, it is.
MR. KHAN: Your Honor, Petitioners offer Exhibit

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Twenty-five into evidence.
THE COURT: Any objection?
MR. FERRARA: Your Honor, the same objections, which you have overruled. I just want to note for the record, even with the exhibit.
MS. WILLIAMS: DHEC's objects, also, Your Honor.
THE COURT: Okay. I'm going to allow the document to go into the record. Thank you.
(Petitioner's Exhibit Number Twenty-five was admitted into evidence.)
Q: Mr. Lester, has your office prepared additional documents showing the mass of the landfill as it's proposed?
A: Yes, sir, we have.
Q: And what -- what program did you use to -- to design those?
A: We used AutoCAD and SketchUp.
Q: I'm referring to Petitioner's Exhibit Nineteen. Can you generally describe what this is?
A: Generally speaking, it is a view -- bird's-eye view from a point over the Grand Bees property looking at the Grand Bees pocket and the landfill.
Q: Okay. I see some what appear to be engineering drawings in this document. Is this

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superimposed on the landfill plan?
A: It was imported. We create the landfill plan.
Q: Okay. Is the landfill at the C&D mound, as shown here, is that a scale as to the one that's engineered in the drawing?
A: It is.
Q: And how do you do that, through AutoCAD?
A: Yes.
Q: Okay. And earlier you were telling us about SketchUp and how it throws a 3D view onto AutoCAD. Is this a representation of that?
A: Yes, sir.
Q: Okay. And Petitioner's Exhibit Twenty, what is this, Mr. Lester?
A: This is a -- a view from inside the Grand Bees' pocket at a rooftop level looking out towards the landfill and over other homes that would have been -- had been proposed and approved. The homes are just fictitious. I don't know that they're anybody's particular home, but they're -- they're a typical representation of houses.
Q: And do they sit in the general area of where they are planned to go here on Petitioner's Exhibit Twelve? I'm sorry.

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A: Which one is this?
Q: This is --
A: This is the Thomas & Hutton plan --
Q: Correct.
A: -- and that's -- that's what those were based on.
Q: Okay. And we all know these residences do not exist at this time.
A: They do not exist, but they had been approved and, had Mr. Bush decided to proceed, he could have built it.
Q: And looking at Petitioner's Exhibit Twenty, and the mound behind, is that an accurate representation?
A: It is a scale accurate representation, yes, sir.
Q: And based on the engineering drawings in the permit application, Exhibit One?
A: That's correct.
Q: Petitioner's Exhibit Twenty-one, these appear to be about nine different images.
A: That's correct. And on the first image, it had arrows, I believe, that pointed in the direction -- let me see these. This exhibit -- here's photograph number one,

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two, three and on -- so forth, and the arrow points in the general direction that one would be looking.
Q: And the program allows you to do that, put a -- put a picture point in a particular area?
A: Yes. The software is just incredible and you can have the sun come across it and make a -- see what the season is like, what the shadows are going to be cast on the ground, and it's all very good. But these images are keyed in -- or are from this keyed-in map here. So this is image four, which is a ground level view between houses looking towards the land mass.
Q: Okay. We won't go through all of them on Exhibit Twenty-one, but are these generally from -- from sea level from -- from the ground level?
A: From ground level, yes, sir.
Q: Okay. And Exhibit Twenty-two, Mr. Lester, is that a continuation of what we just talked about on Exhibit Twenty-one?
A: Yes, sir, that's correct.
Q: And those match up with the camera locations on Exhibit Nineteen?

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A: Yes, sir.
Q: Okay. Almost through. And Exhibit Twenty-three, it looks like here you may have move the camera angle up a little -- a little higher.
A: Yes.
Q: Okay. These middle pictures say, I think -- well, what do they say?
A: It says, "Permit conditions image eight, 30 feet above street level."
Q: Okay. So if you, again, match up these image locations to Exhibit Nineteen, that's the frame of reference of where this photo is being taken?
A: Yes, sir.
Q: Okay. And Exhibit Twenty-four, is that more of the same as matching up with Exhibit Nineteen?
A: That's correct.
Q: And these -- the middle pictures, what do they show? They show some --
A: Permit conditions at the 1,000-foot line.
Q: Okay. And the program allows you to back the camera up?
A: Yes.
Q: Okay.

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MR. KHAN: Your Honor, based upon Mr. Lester's testimony about his opinion that the proposed expansion does not conform with the future development, we offer Petitioner's Exhibit Nineteen through Twenty-four into evidence.
THE COURT: Ms. Williams?
MS. WILLIAMS: Yes, Your Honor. DHEC objects to, I believe, all of these exhibits because we think these exhibits are too speculative. They're not instructive to you. Also, I think Mr. Lester's testified as to how the mound would look when it's finished. Well, it won't look that way because the mound has to be grassed and it won't just be a pile -- a pile of dirt on a mound.
And there are no residences out there, so all of these exhibits with residences in the exhibit, it's not accurate. It's not what's going on at the site.
THE COURT: And I understand that, Ms. Williams. And just -- I would ask you to just please recognize that, you know, this case is not being tried before a jury. It's being tried before me.
MS. WILLIAMS: Right.

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THE COURT: And I will be able to filter out what is really actually there and what is not there. And I clearly understand when he's presenting these, that we're looking at a mound that it will probably take years to get to.
MS. WILLIAMS: Exactly. Exactly. All right. Well, thank you, Your Honor.
THE COURT: Mr. --
MR. FERRARA: Nothing further to add.
THE COURT: Oh, okay. But I'm going to allow them.
MR. KHAN: Thank you, Your Honor.
(Petitioner's Exhibit Numbers Nineteen through Twenty-four were admitted into evidence.)
Q: Mr. Lester, I just want to be clear. Exhibits Nineteen through Twenty-four that we just looked at, the mound, are there engineering drawings in the permit application that show its final elevation?
A: Yes.
Q: And is this mound identified and shown in Exhibits Nineteen through Twenty-four constructed off that final elevation?
A: That's correct, it is.
MR. KHAN: We're almost through, Judge.
Q: One more question as to Exhibit Twelve,

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Mr. Lester. What are all -- what are these lines on the -- on the C&D landfill?
A: These are contour lines. Contours are points of equal elevation, so as you would go around the line, at that point you would be at the same elevation.
Q: Were these elevations the ones that were in the permit application?
A: That's correct.
Q: I notice up here (indicating), this area that faces Grand Bees property has different looking lines going down. What -- why is that?
A: That's where the contours bend and I believe that's the road that will be used to access up the landfill. Currently they come in through the road here. There's the road around it. And as they start going higher up, they'll have to go up that slope. And, of course, the noise is directed straight at the Grand Bees property.
Q: Okay. Thank you. Final two exhibits for Mr. Lester.
Mr. Lester, have you prepared aerials in this case?
A: Yes, sir, we have.

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Q: I believe you had both of these at your deposition the other day. I don't know that they were discussed. I'm holding what's been marked as Petitioner's Exhibit Fourteen. Do you recognize that?
A: Yes, sir.
Q: What -- what is that?
A: That's the aerial that was representative of 2008. That's a photograph that was done in 2008. It shows several developments in that area around the landfill.
Q: Earlier there was some testimony about Long Savannah. Are you familiar with Long Savannah?
A: Somewhat, yes, sir.
Q: Is that what this is up here?
A: That's correct.
Q: Okay. Where do you -- where do you get these aerials from?
A: We purchased aerials of the tri-county area. We use them extensively in our work doing land planning. It's a great sales pitch for a lot of real estate people.
Q: I'm holding, also, Exhibit Fifteen, which is labeled "1/1/2012 Aerial." Are you familiar with this?

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A: Yes, sir, that's one, again, that we prepared to show at -- at the current date.
MR. KHAN: Your Honor, based upon earlier testimony with respect to the 2001 aerial, we think these are relevant and we would ask that they be admitted into evidence.
MS. WILLIAMS: Object, Your Honor, on relevance.
MR. DAWSON: Same -- same objection.
THE COURT: Same objection. Okay. I'm going to allow them.
(Petitioner's Exhibit Numbers Fourteen and Fifteen were admitted into evidence.)
MR. KHAN: Thank you, Your Honor.
Mr. Lester, I don't have any further questions to you -- for you at this time, but Mrs. Williams and Mr. Dawson may.
THE COURT: Ms. Williams?
MS. WILLIAMS: Your Honor, I don't have any questions for this witness.
THE COURT: Okay. Mr. Dawson?
MR. DAWSON: Yes, ma'am, Your Honor. Thank you. I'll take my usual hiding spot, if you don't mind, sir. Thank you.
MR. LESTER - CROSS-EXAMINATION BY MR. DAWSON:
Q: Mr. Lester, you've already testified about your

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years of experience as an engineer and a surveyor. I want to ask you some specific questions about that experience, though. It's true you've never permitted a landfill, correct?
A: Correct.
Q: And it's true that your firm doesn't even do landfill work, does it?
A: No.
Q: Okay. So you've never went through the process of surveying and permitting a facility to present to DHEC for approval in South Carolina; is that not true?
A: A landfill facility, I have not.
Q: Okay. It's also true that you've never represented a client trying to get the property zoned for a landfill before a local jurisdiction in South Carolina; isn't that not true?
A: That's not true.
Q: It's not true? So you have.
A: I agree, no.
Q: Okay. You haven't done it. Okay. And so you also, in assisting Grand Bees Development, did not approach Charleston County about its

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regulations as it relates to a subdivision next to a landfill; is that not true?
A: That's correct.
Q: So in your testimony today, you've testified that you have experience working on subdivisions, but you don't have experience working on subdivisions next to landfills. Is that not true?
A: I don't recall any, other than this one.
Q: You started out your testimony today talking about Article Nine of the Charleston County Zoning Land Development Regulation; is that not true?
A: Yes, sir.
Q: And my understanding is the first time you were made aware of that particular regulation was in preparation for a deposition in this case.
A: No.
Q: Okay. So you were familiar with Article Nine of --
A: Yes.
Q: -- Charleston County's Zoning Land Development Regulations?
A: Yes.
Q: And you had -- were aware of that when?

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A: Oh, this was the UDO. We've known of this for decades.
Q: And you were aware --
A: It was -- it was another one that had been brought to my attention.
Q: Okay. All right. Well, let's talk about your knowledge. Have you had an occasion to work with Charleston County as it relates to buffers for industrial-zoned properties?
A: I can't remember.
Q: Okay.
A: I don't recall.
Q: So at least in -- in the most recent history, you don't recall working with the Charleston County planning department in interpreting and/or reviewing or complying with its regulations dealing with industrial uses and buffers; is that not true?
A: Not necessarily. Now, we have dealt with Charleston County on buffer issues of various zonings. I just don't recall any industrial sites in Charleston County.
Q: Okay. So then you're aware that the County's buffer requirements require the planning director to determine whether they apply or

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not; is that not true?
A: Yes.
Q: Okay. And so you didn't ask the planning director in this case whether the buffers are required in this particular instance; is that not true?
A: That's correct.
Q: Okay. You acknowledge, though, because you looked at the plan sheets for the permit application, that there is 100-foot buffer on the County's property; is that not true?
A: That's what it states.
Q: Okay. And you've got experience reviewing engineering drawings. That's right?
A: Yes, sir.
Q: I think these are your drawings up here. I'm going to unroll them, if you don't mind. I'm going to be try to be organized. This may move around a little bit, so I'm going to need your help a little bit.
A: Sure.
Q: You testified that in providing the drawings that you testified today that you used those plan sheets to create those drawings; is that not true?

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A: Yes, sir.
Q: Okay, good. Let's talk about the plan sheets. Your testimony is that there is, in fact, 100-foot buffer around the entire facility.
A: That's what's called for.
Q: All right. And it does exist?
A: Yes, sir.
Q: Okay.
A: It's only on paper.
Q: Okay. I want you turn to -- I believe it's plan sheet C-5, if you'll turn to that.
A: (Witness complies.)
Q: Mr. Lester, I apologize. I'm going to start real simply. If you will start with G-1. Start with G-1, please.
A: (Witness complies.)
MR. DAWSON: I'm sure some engineer put this together, so I apologize. I think it's in the beginning.
MR. KHAN: I can pull the little ones out, if that's easier.
(Off the Record)
Q: Yeah, that's it right there (indicating).
A: G-1.
Q: G-1, I'm sorry, Golf One.

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A: Okay.
Q: Are you familiar with that site design?
A: I have seen this, yes.
Q: Okay. I'd ask you --
(Off the Record)
Q: Can you -- I'm going to hold it up because I want to make sure the Judge can see what you're going to talking about. Do you see the areas that's on the C&D cell?
A: Yes, sir.
Q: Okay. Could you point to it?
A: (Indicating) C&D.
Q: Do you see the area where it talks about "proposed expansion area"?
A: Yes.
Q: How about pointing to that?
A: (Indicating.)
Q: Okay. And how about showing me where Grand Bees' property is located.
A: Grand Bees is over here (indicating).
Q: Okay. And so the lateral expansion proposed by the County is located next to Grand Bees' property?
A: No, expansion is back here (indicating) --
Q: Okay.

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A: -- the horizontal expansion. The vertical, of course, is going up.
Q: Sure. But the lateral expansion of five and a half acres is not next to the buffer which is next to the property line for Grand Bees; is that not true?
A: Yes, sir.
Q: Okay, good. I want you to turn to another plan sheet, and I believe that one is C-4.
A: (Witness complies.)
MR. DAWSON: Your Honor, my learned co-counsel has reminded me -- I don't know if you have this exhibit in front of you.
THE COURT: I've got it.
MR. DAWSON: I'm going to lose some of my thunder if you can't see it.
(Off the Record)
MR. DAWSON: All right. May I approach? I took the liberty of turning that page. It's going to get complicated. There's so many of them.
Q: Mr. Lester, I apologize. I just want to cover this one more time just so -- the Judge is now looking.
You had identified -- this is G, Golf, zero --
THE COURT: Mr. Dawson, you don't have to revisit

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it.
MR. DAWSON: Thank you, Your Honor.
THE COURT: I've got it.
MR. DAWSON: I appreciate it. Move on.
Q: Mr. Lester, I want to talk to you about the next one, which I believe is C. Let's look at C-5.
A: (Witness complies.)
Q: Can you tell the Court what that document is?
A: It says, "Cross-sections, two of two."
Q: Okay. Sir, are you familiar with these cross-sections?
A: They're cross-sections through the landfill.
Q: And you utilized those cross-sections in order to draw the renditions that you have on those boards, right?
A: No, we used the contours.
Q: Okay. So you didn't use the cross-sections?
A: Well, they're only part of the picture. The contours give you the whole picture.
Q: So you did not use this part of the information in the permit to draw --
A: Well, it's -- it's incorporated.
Q: Okay. Now, this elevation, or cross-section, does it depict where the Grand Bees property is

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located?
A: No. It's a cross-section through the landfill.
Q: All right. Let me ask you about the station marker. Did you -- do you know where that station marker is located, which is zero plus zero-zero.
A: It should be the property line.
Q: Okay. That's good. Let's --
(Off the Record)
A: It should be the property line.
Q: All right. So zero plus zero-zero, which is at the top of this cross section page is the property line for Grand Bees and Charleston County, correct?
A: I don't know. It's not identified. I'm making an assumption there.
Q: That's fine. That's fine.
A: I'm assuming that because at 100 is where we start the fill and they're supposed to have 100 feet.
Q: Very good. Very good. And is it your understanding that the station marking, zero plus zero-zero to one plus zero-zero is approximately how many feet?
A: A hundred.

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Q: It's 100 feet. So you have 100 feet from first station marker to second station marker; is that not true?
A: Correct.
Q: And for the elevation that starts at one plus zero-zero, does the elevation start at that point?
A: I'm sorry?
Q: Let me ask it again. I'll try to be a little more specific. The two lines --
A: Are you asking what the elevation is at --
Q: No, no, sir. No, sir. I'm sure you could provide that. But I'm more interested in whether there is a common elevation at that station marker, meaning from the existing permit to the proposed permitted height.
A: Very difficult to tell at this scale. Looks like they start at about the same point.
Q: Okay. And when do they appear to diverge?
A: Immediately.
Q: Those aren't common lines at the beginning?
A: Two separate lines.
Q: Okay. But don't they converge?
A: They converge this way. As we go up station, they're diverging.

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Q: Okay. You testified about the buffer that are noted in Chapter Nine and it's -- although you acknowledge you did not contact the planning department, you have not asked them whether it applies, you testified that you believe the tables reflect that there should be a 100-foot buffer and that there should be vegetation in the buffer. Is that not true?
A: Yes, sir.
Q: But, as you sit here today, you don't know whether they apply or not, do you?
A: I believe they do. I've had many projects where even though a person owns two pieces of property, because they have different zonings, he has to buffer them --
Q: But you --
A: -- along their common line, so --
Q: But you acknowledge that there is a buffer there.
A: Yes.
Q: Okay.
A: There's a gap.
Q: You testified earlier that in working in other jurisdictions if -- if the application that you're providing is not consistent with the

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local jurisdiction, that they won't approve it. Is that not true?
A: Yes, sir.
Q: Okay. You worked on a planned development guideline amendment for Grand Bees; did you not?
A: Yes, my firm did.
Q: And you actually presented that information to the City of Charleston, which got approval on February 14, 2012; is that not true?
A: That's correct.
Q: Is it your understanding that that particular application and amendments were consistent with the local jurisdiction's standards?
A: Yes.
Q: Okay. I'm going to ask you a couple of questions about those standards, because ...
A: Are we through with these plans?
Q: Yes, sir. Are you aware that for the City of Charleston, for a planned development in their ordinance it talks about the intent behind approving a planned development and amendments? Are you familiar with that?
A: Want to say that again, please?

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Q: Okay. For every ordinance, the local jurisdiction talks about what their intentions are behind approving a particular rezoning. Is that not true?
A: Okay.
Q: All right. You're aware that the City of Charleston does the same thing?
A: Yes.
Q: And you've reviewed the City of Charleston's ordinances in preparation for submitting the planned development guideline amendments, correct?
A: Yes.
Q: Okay. Are you aware that the City of Charleston says that the intention behind planned developments are to ensure compatibility of developments with surrounding areas?
A: Yes.
Q: Okay. Do you think they made a mistake on this?
A: No.
Q: So you think it is compatible with surrounding areas?
A: The zoning for this property in the original

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plan approval was for -- was approved much earlier and this -- this amendment, I think they did not realize that the landfill is going up as much as it did.
Q: So you -- your testimony today is you think the City of Charleston doesn't know that Charleston County has sought for a permit modification to raise the height and --
A: I don't think -- I don't think the planning commission knows.
Q: Okay. Did you know?
A: Yes.
Q: Okay. Did you provide information to them on compatibility in your application?
A: I did not fill out the application. I'm sorry, it was one of the employees.
Q: Okay. So your position today -- I just want to make sure -- the ultimate issue is whether you think the City of Charleston missed it.
A: I don't know that the City of Charleston considers it, because it's in the County.
Q: Even though the City of Charleston's ordinance talks about being compatible with uses in the surrounding area?
A: Yes.

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Q: Okay. Are you also aware that the City of Charleston also has a criteria for approval that talks about the -- the zoning for adjacent undeveloped areas, looking at those uses, as well?
A: Yes.
Q: And isn't that commonplace for local jurisdictions to look at what's going on on the neighboring properties?
A: Yes.
Q: And do you think the City of Charleston did that here?
A: I'm sure they did.
Q: And you think they found that it was compatible and consistent?
A: Yes.
Q: Okay. But you disagree with the City of Charleston.
A: No.
Q: You don't disagree with the City of Charleston?
A: No.
Q: Okay. I'm going to ask you a question about your drawings. This is marked as Petitioner's Exhibit Nineteen. Is it your understanding that Grand Bees proposes to do a development

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with no vegetative buffer on its property?
A: No.
Q: In fact, it's your understanding they're actually going to have a vegetative buffer on the property.
A: Yeah.
Q: So then this drawing doesn't accurately depict what your proposed plan is for the development on this particular site. Is that not true? Be happy to get it closer to you, if you'd like.
A: I'm trying to remember what was back there on the plan. I think it is reasonably accurate.
Q: Yeah, but my question deals with the vegetative buffer along the back property line here that you've got depicted where it shows no vegetation.
A: Uh-huh (affirmatively responds).
Q: Is that accurate?
A: Perhaps not.
Q: Okay.
MR. DAWSON: Your Honor, if you'll give me one second, please.
THE COURT: Sure.
MR. DAWSON: I want to make sure I haven't missed

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anything.
Your Honor, that's all I have. Thank you.
THE COURT: Thank you, Mr. Dawson.
Mr. Khan, do you have anything else?
MR. KHAN: Just two questions, Your Honor.
MR. LESTER - REDIRECT EXAMINATION BY MR. KHAN:
Q: Mr. Lester, when you were discussing with Mr. Dawson the February 14th, 2012 PUD amendment -- do you recall that?
A: Yes.
Q: Was there a PUD existing on the property prior to that?
A: Yes.
Q: Did the land use change from the preexisting PUD to the new PUD?
A: No.
Q: Did the density change?
A: No.
Q: Thank you. When you were talking about Exhibit Nineteen with Mr. Dawson as to the accuracy of it -- I'm not sure if Mr. Dawson's referring to the February 14th plans or the plans that were submitted -- or, excuse me, that existed on this property at the time of the permit application. Is Exhibit Nineteen -- does it

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reasonably depict the development that was proposed at the time of this permit application?
A: I believe it does. I just cannot remember what we had on that back side. I believe the homes were right up to that boundary, to the -- to the property line.
Q: Is your answer the same if -- does that exhibit accurately depict the proposed development that was planned on the property at the time that this permit was issued?
A: That's correct. Thomas & Hutton plan.
MR. KHAN: Thank you, Your Honor. That's all I have.
THE COURT: Okay. Thank you.
Thank you, Mr. Lester.
THE WITNESS: Thank you.
(Witness excused.)
THE COURT: I think before we move to the next witness, we're going to take a short lunch break. It's now -- it's close to 1:30. Let's take an hour break and return at 2:30.
(Lunch break from 1:26 p.m. to 2:36 p.m.)
THE COURT: Okay. I think we're ready to go back on the record. Mr. Walker or Mr. Khan, you may

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call your next witness.
MR. KHAN: Thank you, Your Honor. Petitioners call Wallace Jack to the stand.
WALLACE A. JACK, having been duly sworn, testifies and examines as follows:
MR. JACK - DIRECT EXAMINATION BY MR. KHAN:
Q: Thank you, Mr. Jack. Would you state your full name for the record, please?
A: Wallace -- Wallace Augustus Jack.
Q: And, Mr. Jack, where are you currently employed?
A: SPAWAR Systems Center, Charleston.
(Off the Record)
Q: Yeah.
A: It's SPAWAR Systems Center Atlantic.
Q: And what do you do for SPAWAR, Mr. Jack?
A: I'm an engineer.
Q: And what is your address?
A: 212 Hampton Bluff Drive.
Q: And what subdivision is that in?
A: Autumn Chase-Magnolia Lakes.
Q: I'm sorry, I didn't hear you.
A: Autumn Chase-Magnolia Lakes.
Q: And what larger subdivision is it in?
A: It's inside Grand Oaks.

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Q: Okay. And how long have you lived inside of Grand Oaks, approximately?
A: I bought my house in November of 2000.
Q: Prior to that residence, where did you live?
A: I lived in Virginia before that.
Q: And prior to moving to Virginia, where did you live before that?
A: I lived in Canterbury Woods subdivision in West Ashley.
Q: Where is, generally speaking, Canterbury Woods?
A: It's at the end of Bees Ferry -- Bees Ferry Road where it connects with Route 61.
Q: Okay. I'm going to -- I'm showing you Petitioner's Exhibit Thirteen. Could you point out, generally speaking, where your current house is?
A: It's on this road right here (indicating).
Q: Okay. Right below this black line?
A: Just -- just inside that black line.
Q: Okay. And Canterbury Woods, referring to Exhibit Fourteen, is -- is generally where, just for a matter of perspective, 61?
A: This is the Canterbury Woods -- no, that's the Springfield Elementary School, so Canterbury Woods is just behind it.

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Q: Okay. And where's the landfill in relation to that?
A: It's over here (indicating).
Q: Okay. And how long did you live in Canterbury Woods, roughly?
A: I lived there from '88 to '96.
Q: Okay. So you lived a significant amount of time in the area of Bees Ferry Road.
A: Yes.
Q: When you -- when you moved back down from Virginia, why did -- why did you pick Grand Oaks to be your residence?
A: I was trying to live in the same neighborhood that I had lived before, go back to the same church.
Q: Did you know the landfill was there?
A: Yes.
Q: What did you do to make yourself a little more comfortable as to buying property in that subdivision?
A: Once I knew there was a lot available in Grand Oaks, I contacted the landfill, got ahold of the supervisor, went and met him at eight o'clock one morning. He gave me a tour. I had never been past the main gates where you

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can really see much of what's inside there.
Q: Do you think we're talking in the time frame of about 2000 at this point?
A: Yeah, would have been summer-ish of 2000.
Q: Okay. What did -- what was your general impression of the landfill?
A: It -- it was -- I was -- I was -- couldn't think of it as a place to dump -- I was impressed. It didn't have the smell of a dump of other landfills that I'd been to.
Q: Do me a favor and just speak up a little bit.
A: Okay. I -- I was impressed. It was -- there wasn't any bad smells that I was used to in other landfills.
Q: What other landfills do you have any experience with?
A: There was a landfill, a dump where I grew up in Maine and, also -- a couple places in Maine I knew of landfills.
Q: Okay. Did you -- in taking that tour at the County's Bees Ferry Landfill, did you feel some level of comfort after it with purchasing your house next door?
A: Yes, I -- I was -- I mean, I -- I'd always known the landfill was there and it was --

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didn't know of any problems with it. Took a closer look and didn't find anything else that raised my suspicions of -- of a problem at that time.
Q: Could you see it from the lot you were going to build on?
A: No.
Q: Based on what you saw out there during your tour and that you couldn't see it from your lot, were you comfortable buying your property in Grand Oaks?
A: Yes.
Q: When you purchased your lot or built your home -- I'm not sure exactly what you did -- tell me a little bit about Grand Oaks at that point in time. Was it in its initial stages?
A: Yeah, I think the only neighborhood was the Autumn Chase-Magnolia Lakes neighborhood at that time.
Q: Okay. Do you hold -- currently hold an elected position within one of the associations?
A: I hold -- I'm on the board of Grand Oaks Boulevard Association.
Q: Okay. How many board members are there?
A: Three board members.

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Q: How long have you held that post as board member on that association?
A: For five years.
Q: And prior to being elected to that association, have you served on any other boards?
A: I was on the board of the Autumn Chase-Magnolia Lakes (inaudible)
Q: Speak up a little. I couldn't hear.
A: I was on the board of the Autumn Chase-Magnolia Lakes from 2003 to 2008.
Q: And just so everyone understands, what is Autumn Chase-Magnolia Lakes?
A: That's one of the subdivisions inside of Grand Oaks.
Q: Okay. So Grand Oaks is set up that it has different subdivisions and neighborhoods within the larger Grand Oaks?
A: Different developers have developed different sections of what is called Grand Oaks.
Q: Essentially different neighborhoods?
A: Yes.
Q: Okay. And how were you elected to your position of board member on your current association?
A: By the -- the tract owners or the HOA boards

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that are in charge of those neighborhoods inside Grand Oaks.
Q: So is your association essentially what they refer to as the "master" association?
A: The -- we -- the neighborhoods pay into us and we take care of the common properties that is common to all of Grand Oaks.
Q: Understood. And once you're elected to the board of Grand Oaks Boulevard Association, how are officer positions dealt with at that point?
A: We elect our officer position within the board --
Q: Okay.
A: -- amongst the three people on the board.
Q: So the three people on your board elect each of you to a different position?
A: Correct.
Q: Okay. Have you served as the president?
A: Yes.
Q: For roughly what --
A: Four years.
Q: Okay. And what is your current position?
A: Treasurer.
Q: Tell the Court a little bit about Grand Oaks. We touched on it. Do you have an estimate of

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how many different neighborhoods are inside of it right now?
A: There are nine neighborhoods with housing units in it right now.
Q: Okay. Are there other neighborhoods that are coming forward?
A: There are two other tracts that are designated as residential.
Q: Okay. Does one of those include Grand Bees Development?
A: Yes.
Q: Okay. Do you have a rough figure of how many homes we're talking about in Grand Oaks?
A: My best estimate is, looking at the density of my own neighborhood, knowing -- since how -- treasurer, that's how we bill people is by acreage, using that as a rough estimate. There are townhouses and apartment buildings, which are more dense, but just using the density of my neighborhood, it's around 1,500 as a rough guess of how many there now.
Q: Fair enough. Is there a city park inside of Grand Oaks?
A: Yes, there's a city park there.
Q: What's in that city park?

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A: They have different kind of ball fields and soccer fields and a gymnasium and activity rooms.
Q: Is there a pool?
A: They have a plan for a pool, but it's not there yet.
Q: Is there a pool in the neighborhood?
A: Many of the subdevelopments, like my neighborhood has its own pool. Not all of them do, but many of them do.
Q: Okay. Is Grand Oaks one of the larger communities you've lived in?
A: If you look at it as Grand Oaks as a whole, yes.
Q: You said you were the treasurer, right?
A: Yes.
Q: Are you responsible for billing different sub associations and other developers?
A: We have a management company that does the billing and holds the money. And the best description of my job is more of the history of -- of the finances --
Q: Okay.
A: -- to help the board make decisions on what to do in the future by knowing --

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Q: I understand.
A: -- what we've done in the past.
Q: Do you have a pretty good estimate of what percentage Grand Bees Development, LLC's property makes up of the Grand Oaks Development?
A: Yeah, by acreage, which is the way we do our billing, it's bigger than a quarter of Grand Oaks as a whole.
Q: Okay. Do you have that actual numerical figure?
A: It's like 26 and something percent.
Q: Okay. So Grand Bees Development property, the one we're here for today, is 26 and -- percent and change of the entire neighborhood.
A: Yes.
Q: Okay. Does Grand Bees Development, LLC, currently pay some association dues to your association?
A: Yes.
Q: Generally speaking, when -- when did you, Mr. Jack, I guess, individually and as a member of the board, learn of the County expanding the C&D landfill?
A: From my best recollection is the -- shortly

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after the court case that put a hold on the permit. And then the County was doing a modification to the zoning that had to do with -- the details of that court case was about the time that I remember that there was an expansion planned.
Q: And at that time were you on the master association?
A: Yes.
Q: And you hadn't heard about it beforehand?
A: No.
Q: Did that come as a surprise to you?
A: The height came as a surprise.
Q: After you learned of the expansion, did you individually and as a board member take -- take an interest in the ongoings of --
A: Yes.
Q: -- the landfill?
A: Tried to keep up with what's -- what's going on, as best I can.
Q: What did you do? Did you attend board meetings? Or, excuse me, board meetings. Did you attend public hearings?
A: Yes.
Q: Do you know if you or another board member

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commented at times when they were able to?
A: Yeah, we -- one other board member has commented at these hearings, the guy who's presently president.
Q: Did the association find itself obtaining information freely as to the ongoings of the landfill?
A: I knew very little. Most of what I gained was by going to the public hearings. I learned most of what I learned by attending them.
Q: Do you recall if any of the residents that comprise Grand Oaks would contact the board and ask for updates and things of that nature?
A: There wasn't much of that.
Q: Why -- why do you feel there wasn't much of that?
A: As far as the landfill, I -- I don't know that many people knew about the -- the expansion, is my feeling. I -- I guessed that a lot of them felt like I did in the past. Things had been fairly appropriate or friendly neighbor kind of thing.
Q: Once you started knowing what was going on, did you as a board member try to funnel information down to the other associations?

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A: All we have tried to do was put stuff on the website, the notifications of the public hearings, results of the -- of the hearings that we were aware of.
Q: You mentioned you thought of -- or I don't know if -- did you say you thought of the landfill as a friendly neighbor?
A: I did, yes.
Q: Do you still feel that way?
A: It's -- it's more of a suspicious neighbor, I guess is the best word, as not knowing what they're doing since -- which was probably, in my mind, heightened by the County changing the requirements for public hearings made it even appear harder for me to know what's going on, made me more suspicious.
Q: Are you referring to their action in carving out an exception to the special exception procedures for the landfill?
A: I believe that -- yes.
Q: What are they doing right now on Bees Ferry Road, Wally?
A: They have a widening project, roughly going from two lanes to four lanes.
Q: What's the current state? Is there cones

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everywhere?
A: There is orange cones up the whole way. Then they're clearing trees and -- from certain places and they've reduced the speed limit.
Q: What's the current state of traffic on Bees Ferry Road, generally?
A: At the moment it hasn't really changed due to the construction, other than them just lowering the speed limit, because they're doing all the work clearing trees to where the road's going to be widened. I don't think they're really interfering most of the time with really any of the paved areas.
Q: Does traffic back up on Bees Ferry Road, though?
A: It backs up -- for me, it backs up when you're going from Glenn McConnell onto Bees Ferry.
Q: Okay.
A: I don't have to travel much on Bees Ferry to get into my neighborhood.
Q: Petitioner's Exhibit Twenty-five, you saw this earlier, correct?
A: Yes.
Q: As a resident of Grand Oaks and as a member of its board, how do you feel about a mound that

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size going in next door?
A: That -- that's a surprising picture. I -- I know -- I know how much many of the people in the neighborhood complained about the lights they put at the city park that were going to be about tree height and how many times they went to the zoning committee complaining about the park going in and that is much more striking.
Q: I would imagine that you certainly wouldn't want something like that as your neighbor.
A: Correct.
Q: Do you -- do you, as a board member, also go to other hearings about other ongoings in the association other than the landfill?
A: Yes.
Q: You know, such as the extension of Glenn McConnell and things of that nature, did you participate in those?
A: Recently, I've gone to the ones dealing with the 526. I don't -- I don't know if I -- I don't think I've -- I can't remember going to any on the -- on the Glenn McConnell extension.
Q: Fair enough.
A: We had people from the City come to talk to our board meeting about the West Ashley Circle

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which dealt with that early on in my time.
Q: Okay. Again, looking at Exhibit Twenty-five, Wally, as a resident of Grand Oaks and as a board member of the association, do you believe that the expansion to 168 feet would conform with Grand Oaks and its development?
A: No.
Q: Any reasons why?
A: It -- I mean, right now you -- in Grand Oaks there's lots of trees. You know, you see houses and -- and small road areas and ponds and trees and you don't see a large industrial type mound that you can see beyond the trees. It's -- you don't see it and it's -- you don't -- you don't, unless you -- from being in -- if a visitor came to us and asked, they wouldn't know the landfill was there right now.
Q: And this is your home, right?
A: Right.
Q: I mean, do you have families that live in Grand Oaks?
A: Say that again?
Q: Do you have families that live in Grand Oaks?
A: Do I have families?
Q: Are there families that live in Grand Oaks?

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A: Yes.
Q: These are these people's place of residence, correct?
A: Correct.
Q: Also, on that question, based on your -- you being a resident of Grand Oaks, as well as being a board member, do you feel that the expansion going to 168 feet conforms with the surrounding environment, as well?
A: No.
Q: And is it for the same reasons?
A: Yeah.
MR. KHAN: Thank you. They probably have some questions.
THE COURT: Ms. Williams?
MS. WILLIAMS: Thank you.
MR. JACK - CROSS-EXAMINATION BY MS. WILLIAMS:
Q: Good afternoon, Mr. Jack.
A: Good afternoon.
Q: I just have a few questions for you. I believe you -- you testified that you found out about the modification to the C&D landfill after the 2009 hearing; is that correct? There was a hearing on it at the ALC in 2009. I think you said you learned about it after --

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A: I'm not sure of the date, but it was after the hearing that questioned the permit.
Q: Okay. And would you say that was approximately two to three years ago that you heard about the modification to the permit?
A: I guess, if 2009 is the right date. I know I was at the County zoning public hearing for changing the zoning that affected -- having public hearings for different kind of things in that area.
Q: Okay.
A: And it was shortly before that that I learned about what was going on.
Q: Okay. And I heard you testify that you attended some public hearings in regards to the landfill; is that correct?
A: Yes.
Q: Okay. And when did you start attending public hearings in regards to the landfill?
A: The earliest one I remember would have been that -- I considered it a hearing for the landfill -- that the County did the zoning adjustment, even though they announced strongly at the beginning this had nothing to do with the Bees Ferry Landfill.

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Q: Okay. And how many hearings would you say that you've attended in regards to the zoning of the landfill or the landfill itself?
A: Of the landfill?
Q: Uh-huh (affirmatively responds).
A: Three or four.
Q: Okay. Did you attend the public hearing that DHEC held on the landfill?
A: I -- what was the date of that?
Q: It was in July -- I'm sorry, July 13th, I believe.
A: This past July?
Q: In -- yeah, 2011.
A: Yeah, I attended that one. I got a notice in the mail, I believe, of that hearing.
Q: Okay. So you commented that you didn't have a lot of information about the landfill. But you attended public hearings.
A: Yes.
Q: And so did you -- you found out information about the landfill by attending the hearings?
A: Right. My comment to that was I haven't said a lot of things at hearings because most of what I've learned at a particular hearing was what I learned there. I didn't come with a

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statement to make because I learned most of the information at each of the hearings.
Q: Okay. But did you learn a lot while you attended those hearings about the landfill?
A: I wouldn't call it "a lot." It was very high level otherness.
Q: Okay. And you have concerns about this landfill expanding vertically and horizontally; is that correct?
A: Yes.
Q: Okay. Have you voiced your concerns to DHEC?
A: No.
Q: Are you aware that you could have voiced your concerns to DHEC?
A: I'm not fully aware of -- of what my options are to discuss.
Q: Okay. You did attend the public hearing, though, is that correct --
A: Yes.
Q: -- that DHEC held?
A: Uh-huh (affirmatively responds).
Q: And would you say at that public hearing you could have stood up and addressed DHEC with whatever concerns that you had?
A: Yeah, and I believe I made a statement there,

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something short, not very detailed.
Q: All right.
A: I remember more of what my other board members talked about than I did.
MS. WILLIAMS: That's all I have. Thank you.
THE COURT: Okay. Mr. Dawson?
MR. DAWSON: I think Mr. Ferrara's going to take this one.
THE COURT: Okay. Very good.
MR. FERRARA: I'm going to take the Dawson position, okay? See if it will rub off on me, All right?
MR. JACK - CROSS-EXAMINATION BY MR. FERRARA:
Q: Mr. Jack, sounds like -- let me just -- let me reiterate some of your testimony. You've lived in Canterbury Woods for eight years; is that right?
A: Yes.
Q: That's the end of Bees Ferry Road?
A: Near the end of Bees Ferry Road.
Q: And then before that you lived a significant amount of time on Bees Ferry Road? Or was that Canterbury Woods?
A: I've -- I've lived in -- I've owned two houses in South Carolina.
Q: Okay.

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A: I lived in an apartment a short time in between, but I've lived two different places, Canterbury Woods and Grand Oaks.
Q: Okay. And both of those are along Bees Ferry Road?
A: You -- you get to Canterbury Woods off 61, but very close to where Bees Ferry and 61 come together.
Q: And then you said you lived in Maine near a landfill?
A: I grew up with -- with a small town dump in where I grew up in Maine.
Q: Okay. You grew up your entire childhood in Maine near a dump?
A: Well, it was a small town and they had a dump. I don't know what you want to call "near."
Q: All right. So it sounds like you -- to use your words -- you felt some -- you're used to living near a landfill?
MR. KHAN: Objection, Your Honor. I don't think that was his testimony.
Q: Are you -- are you comfortable living near a landfill?
A: The dump in the town I was in was on the other side of town.

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Q: Okay.
A: Miles away.
Q: Let's talk about South Carolina.
A: Okay.
Q: You've lived in Grand Oaks and Canterbury Woods, both along Bees Ferry Road. You pass -- do you pass the Bees Ferry Landfill on a daily basis?
A: No.
Q: All right. How often do you pass the landfill?
A: Once a month, maybe.
Q: All right. But were you aware that the Bees Ferry Landfill existed when you bought your home in 2000?
A: Yes.
Q: Okay. And were you aware of it when you lived in Canterbury Woods in 1988?
A: I don't believe so.
Q: Okay. And, correct me if I'm wrong, you've served on a board for five years that -- the Grand Oaks Boulevard Association, and then you served on the Autumn Chase-Magnolia Lakes Association for a period of years, as well; is that true?
A: Yeah, it was before the Grand Oaks board.

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Q: How many years did you serve on the Autumn Chase-Magnolia Lakes Association?
A: It was '03 to '08, so it was about five years, also.
Q: All right. When you served on the Autumn Chase-Magnolia Lakes Association, was the Bees Ferry Landfill an issue before the association?
A: I don't remember any issues of it coming up while I was on that board.
Q: Okay. And when you served on the Grand Oaks Boulevard Association, was the Bees Ferry Landfill an issue before the association?
A: I don't know what you mean by "an issue before the association."
Q: Well --
A: It's not something we make a decision about to do anything to it.
Q: No, but isn't it true that you've served in some capacity as a member of some association for eight years, either as a president or a secretary or some form as a board member?
A: I've served five years in two places.
Q: Okay. And in that capacity don't you -- do you represent the homeowners in that association?
A: In Grand Oaks, I represent the HOA and the

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tract owners.
Q: Okay. And do you -- in your position as one of the board members, do you keep the homeowners in the association informed of issues of importance, or to use words, "significant"?
A: We -- we keep the boards notified.
Q: Oh, the boards notified.
A: Because that's who are the members of Grand Oaks is the homeowner boards or the developers of the tracts.
Q: All right. And then do those board members then disseminate that information down to the homeowners in the various subdivisions?
A: I -- I hope so. I don't know how much they do with it.
Q: Do you know whether they did at all?
A: I know we put stuff on our website, so it's there to be looked, but I -- I don't -- I didn't do a polling to find out what people did with it.
Q: Well, you testified that there are approximately 1500 homes in these various nine neighborhoods, two more that will be coming onboard, Grand Bees Development being one of those, and you testified that you feel the

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height of the Bees Ferry Landfill is significant. Did you testify and say that?
A: Yes.
Q: Okay. And in following up on Ms. Williams' question, did any one of those 1500 landowners come to any of the public hearings or issue comments about the Bees Ferry Landfill to DHEC when the permit application was made by Charleston County to expand the landfill?
A: I -- I know of other people who attended hearings. I don't know if anybody made any comments to DHEC.
Q: Did you make any comments?
A: I said earlier, no.
Q: Did any of the board members make comments?
A: They -- one other spoke at a public hearing. That's the only other comment I know.
Q: Okay. Good. You testified that you learned about the expansion of the C&D expansion after the court case got underway and that the height issue came as a surprise to you and that you kept up as best you can on the issue. You attended board meetings, public hearings. And, again, did you ever contact Charleston County? You. Did you ever contact Charleston County

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and say, "Charleston County, what are the long-range plans for the Bees Ferry Landfill?"
A: Yes, in 2000.
Q: You did? Who did you contact?
A: That's when I got the tour by the supervisor.
Q: That was before the litigation; is that correct?
A: Right. You said did I ever contact --
Q: All right.
A: -- them about their plans for the landfill. And I got a tour by the supervisor in 2000 before I committed to having a house built.
Q: All right. And after that did you contact Charleston County about what the future long-range plans of the Bees Ferry Landfill were?
A: I had a description of what the permit was, so that's what I -- I understood was the plans. I didn't investigate further.
Q: Then you talked about traffic along the Bees Ferry Road, that there's a lot of orange cones out there. Are you suggesting through your testimony that the traffic on Bees Ferry Road is heavy because of the expansion of the Bees Ferry Landfill?

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A: I don't think I suggested it was heavy in anything I said.
Q: So what was the relevance of the testimony regarding traffic along Bees Ferry road?
A: I think I was asked what is the condition of it now and it has yellow or orange cones along its length on both sides.
Q: Have you been out to Mount Pleasant, South Carolina, recently?
A: A couple months ago.
Q: Been out to Harbor View Road on James Island recently?
A: No.
Q: Been out Folly Road to Folly Beach recently?
A: No, not that I've noticed any construction in those places.
Q: Glenn McConnell Parkway?
A: Yes.
Q: It intersects Bees Ferry Road.
A: Right.
Q: That road is littered with orange cones, isn't it?
A: Not right now. Has -- has been this past year.
Q: Do you know why all this traffic work is being done in Charleston County?

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A: To improve the roads, I assume.
Q: Okay. You testified that the height -- Mr. Khan showed you an exhibit and you said the height is just much more striking. Do you recall making that testimony?
A: Yes. I don't know if I used the word "striking," but ...
Q: And that exhibit depicts the height at 168 feet; is that correct?
A: That's what I understand it depicts.
Q: My question is: When, according to you, does the height not become so much more striking? Is it 160 feet?
A: I would say when it gets above the tree line is when it becomes --
Q: Is it 160 feet?
A: Above the tree line. I don't even know exactly how tall the tree line is.
Q: All right. That's fair. The fact that you find that the height of the landfill is so much more striking, is that your conclusion?
A: It's my conclusion and -- and reactions I've seen of similar things in the neighborhood, like I mentioned the -- the height of the

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lights at the city park.
Q: All right. And that conclusion is your conclusion.
A: And I've discussed this with our three-member board.
Q: And that conclusion is subjective, isn't it?
A: Yes.
Q: One last question: If the Bees Ferry Landfill height is significant, why didn't you as the president of the HOA find out a little bit more about the issue and exercise your rights as to -- to be heard on the matter of plans of the Bees Ferry Landfill?
A: In many ways it seemed like the decision had been made, most of the times I went to these -- these hearings. I went to the hearing for the zoning board and -- and it was stated up front, "This is not about the Bees Ferry Landfill," even -- and it was -- the guy said, "I don't want to hear anything about it." Many people spoke about it when it came to public hearing time, but it's been -- the hearings are few and far between.
Q: And when the guy said, "I don't want to hear about it," you could have submitted comments in

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writing, couldn't you?
A: I -- I believe I spoke at that hearing.
Q: But you could have submitted comments in writing, if they didn't want to hear about it; is that true?
A: I don't know what -- what -- I don't know -- I don't know what good it would have done. I don't know what time it would have -- I spoke at the -- I spoke in person. I thought that was better than submitting something in writing.
Q: Are you aware that permits can be issued with conditions?
A: I don't know a lot about the -- the details for issuing permits.
MR. FERRARA: All right. Thank you very much.
MR. KHAN: Just one follow-up, Your Honor.
MR. JACK - REDIRECT EXAMINATION BY MR. KHAN:
Q: Mr. Jack, there seems to be some confusion as to either your attendance or the board's attendance at various public hearings. Did the board, either yourself or someone else, go to the public hearing in this case that happened sometime this summer?
A: Yes.

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Q: And I don't know if it was you, but someone from the board spoke in opposition to the permit, correct, or asked questions, at least?
A: Yes.
Q: Made a public comment, I assume?
A: Right.
Q: And I know I recall either you or someone else from the board at most of the hearings. Is that your recollection over the past couple of years?
A: I don't know -- I don't know how many I've missed that I didn't know about, so I don't know about the word "most."
Q: Okay.
A: I've gone to three or four, but I don't know how many total have been since that time.
Q: But as to this permit that we're here for today, you were in attendance at that public hearing?
A: Yes.
Q: And so were additional members of the board?
A: Yes.
MR. KHAN: Okay. That's all I have, Your Honor.
THE COURT: Okay. Thank you.
MR. KHAN: Your Honor, Petitioner is going to rest

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its case at this time.
THE COURT: Okay. Thank you.
MR. KHAN: Thank you.
THE COURT: Okay. Respondent?
MS. WILLIAMS: Yes, Your Honor, we're going to call Kent Coleman to the stand. I think he stepped out to go to the restroom. As soon as he comes back, we'll get started.
THE COURT: Okay.
MS. WILLIAMS: Okay. Your Honor, I call Kent Coleman to the stand.
THE COURT: Okay. Mr. Coleman, if you'll come forward.
MR. COLEMAN: I apologize for delaying here.
THE COURT: No, that's all right. If you'll raise your hand before you take your seat so the court reporter can swear you.
KENT M. COLEMAN, having been duly sworn, testifies and examines as follows:
MR. COLEMAN - DIRECT EXAMINATION BY MS. WILLIAMS:
Q: Good afternoon. Will you state your full name for the record.
A: Kent Middleton Coleman.
Q: Mr. Coleman, where do you work?
A: I currently work for DHEC.

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Q: Okay. And DHEC is?
A: Department of Health and Environmental Control.
Q: All right. And what is your -- your current title or job -- yeah, current title at DHEC?
A: Currently, I'm the Director of the Division of Mining and Solid Waste Management.
Q: Okay. And in that position, what are your duties?
A: I oversee permitting of solid waste management facilities, which include landfills. Also, the permitting of mining operations and the reclamation of mines. And the Office of Solid Waste Reduction and Recycling within DHEC, groundwater monitoring, solid waste grants program and various related solid waste type activities.
Q: Okay. What is your education? Where did you go to college?
A: I have a Bachelor's degree in geology and business from the University of South Carolina. And I have a Master's in earth resource management, also from the University of South Carolina.
Q: Okay. And how long have you worked at DHEC?
A: A little over 20 years with DHEC.

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Q: Can you tell us -- or will you tell us where you started at DHEC and maybe how long you were in that particular position until you proceeded into your current position?
A: Okay. I started out at DHEC as a hydrogeologist, overseeing landfill permitting activities and compliance activities, primarily with groundwater and methane monitoring type activities and also writing permit conditions for landfills. I did that for about three years.
Then I became a supervisor of the CERCLA, which is the -- it's a clean-up -- environmental clean-up program, commonly known as SuperFund. I became a supervisor of that program. I did that for about nine years.
Then I became a director in the underground storage tank program where I oversaw the -- the clean-up fund and clean-up activities. And then after that in -- at the end of 2007, I became the Director of the Division of Mining and Solid Waste, which is my current position.
Q: Okay. So you have a lot of -- do you have a lot of experience in the area of landfills and the permitting of landfills.

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A: I've -- I've worked specifically in the landfill program at DHEC for about -- I guess, a little under eight years. But also in my other duties within DHEC, I also had landfill-related experiences with the clean-up programs because you have to dispose of things in landfills when you do clean-ups and sometimes the clean-ups are of, you know, landfill-related type issues.
Q: Okay. Tell the Court when you first became aware of Charleston County's request for a permit modification to the Bees Ferry C&D Landfill?
A: It would have been December of 2007.
Q: And so were you involved in the first hearing in which Grand Bees challenged the permit modification in this matter?
A: Yes. You mean in this court -- in the ALC court?
Q: Yes.
A: Yes.
Q: Okay. What is your recollection regarding what came out of that hearing?
A: Okay. Well, a lot of the same things were argued and discussed in terms of residences and

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so forth, but the -- the Judge's ruling directed DHEC to review the permit again and in -- it was -- we were directed per the order to review it in accordance with the ZLDR, which was the Charleston County zoning regulation or ordinance.
Q: Okay. I have the order right here.
MS. WILLIAMS: May I approach the witness?
THE COURT: Sure.
Q: If you'll read the order portion of -- well, kind of identify it and say when the Judge signed it.
A: Okay. Yeah, this is the order signed by Judge Anderson on June 2nd of 2009. And the part -- the end of the order where it says that, "It is, therefore, ordered that DHEC's decision to grant the modified permit is vacated in this case, is remanded for review in accordance with the ZLDR."
Q: Okay. So how did -- you as the Director of Solid Waste and Mining, how did you construe the Judge's directive?
A: I think it was very clear and very specific, that we were to reconsider the permit in regard to Charleston County zoning.

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Q: Okay. Did DHEC construe this statement by the Judge to go back and look at any of the other determinations that had been rendered by DHEC --
A: No.
Q: -- previously?
A: No.
Q: And so since there was no directive from the Judge to do that, is there another -- is there any other reason why DHEC would not have gone back and rereviewed the entire -- the other three determinations that are made in regards to a landfill permit application?
A: Well, there is -- there is some language in the landfill regulation, which is 61-107.19. I think it's 1.d.1.b., or some -- somewhere in that -- in that vicinity of Section D.1.
Q: What's the gist of that language?
A: The language is that if DHEC has made determinations prior to the effective date of the regulation, that those determinations are to remain applicable, subject to, you know, this process, really, the -- the appeal and the public noticing and public comment process.
Q: Okay. I'm going to approach you again and hand

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you the actual regulation. And if you'll read it verbatim.
A: Okay.
Q: And if you'll identify where it is in the regulation.
Oh, I'm sorry. I turned --
A: It is -- I've got it. It's -- I was just going back to the --
Q: Oh, okay.
A: -- previous page to get the -- the reference. It is 61-107.19 and it's Section D.1.b. So D.1.b. And that -- that reads: "Where, prior to the effective date of this regulation, the Department has made determinations required under Part I, D.1.a., of this regulation. Such determinations shall remain applicable and become the agency's final determination under Part I, D.1, subject to the appeal provisions of -- in Part I, D.1.c. and the subsequent public notice and application process."
Q: Okay. So had DHEC made any determinations under I, D.a. -- 1.a.?
A: We had made those determinations that are covered in that section and those would be in regard to demonstration of need, buffers,

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zoning and consistency with County and state plans.
Q: Okay. So of the four of those determinations that you named, the Judge, as I understand and as you have testified, only directed DHEC to go back and rereview one of those determinations having to do with zoning; is that correct?
A: That's -- that's correct.
Q: Okay.
A: Yes.
Q: So based on the regulation, would DHEC have even had the authority to go back and review -- rereview the determinations that have been made previously?
MR. WALKER: Object to the question, Your Honor. That asks for a legal conclusion. DHEC has -- DHEC's authority is established by statute. This witness has testified to what he understood that Judge Anderson wanted looked at upon remand and he -- she -- the counsel for DHEC, is asking the witness to interpret and apply a statute and to render his opinion about the authority it gave DHEC, which is improper. The questions as to the authority granted by that would be a question of law for the Court,

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not for the witness.
MS. WILLIAMS: Your Honor, Mr. Coleman interprets the statute and regulations every day as he's overseeing the Solid Waste Management and Mining Program. What I'm asking him to do is tell me in his purview as someone who deals with the statute and regulations on a daily basis, you know, in his opinion did DHEC, who he works for, have the authority to go back an rereview -- rereview part of the permit application where determinations had already been made. I believe as a layperson he can answer that question in terms of what he understood to be within his authority as a DHEC employee.
THE COURT: I'm going to allow you to ask that question. I'm going to allow him to answer that question within the parameters that you've just established --
MS. WILLIAMS: Yes. Thank you.
THE COURT: -- that you explained what you're looking for.
Q: So I'll rephrase the question. Mr. Coleman, as Director of Solid Waste and Mining at DHEC and in your job as someone who applies the statute

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and regulations in your job in reviewing permit applications, in your purview and in -- you know, within your duties and responsibilities, did -- in your opinion, did DHEC have the authority to go back and rereview determinations that have been made previously?

MR. WALKER: Objection. I think what the Court allowed was for him to state what he understood, rather than render an opinion on what the statute said.

THE COURT: Correct.

Q: All right. Well, within what Mr. Walker said, can you please answer that question?

A: Sure. My understanding and -- and my understanding is gained through my work and consultation with -- with my legal counsel within DHEC, but we -- my understanding is that the regulation directs us where we have already made prior determinations on these issues, those determinations stand as applicable, subject to the process that has followed which -- you know, that process that follows is public noticing, public comments and appeals, potentially.

Q: Okay. Thank you.

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A: Uh-huh (affirmatively responds).

Q: Okay. And I'd like to pose to you a hypothetical. Let's say that you -- you did think that DHEC had the authority to go back and rereview the determination. Would any -- in your opinion and in -- in your position, would any of those determinations have been any different than what they are right now?

A: No.

Q: Do you want to expound upon that? Why would they have not been different?

A: Well, we --

Q: Or why would they not be different?

A: -- as we have proceeded through our normal job activities related to this landfill, as in any other landfill, we have remained aware of the situations around the landfill. We've been out and visited the site and we've, you know, made different decisions in different things related to the landfill.

But so the -- you know, I mean, I'm aware of the situation and I do know that, you know, there are no new residencies. The demonstration of need has not changed because it's an expansion. The County plan is still

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consistent with the County plan, still consistent with the State plan. And the only thing that's changed, you know, as we've been discussing here, would be the County's change in the zoning, which is what we are -- what we did reconsider based on the Judge's order.

Q: So to have gone back and rereviewed those determinations, what -- what would have been gained by doing that?

A: Well, there would have been no change in the decision.

Q: Okay. All right. Let's talk about the determination that was rereviewed, which is zoning.

A: Uh-huh (affirmatively responds). Okay.

Q: Tell the Court how DHEC went about rereviewing or reviewing the permit -- I'm sorry, proposed landfill against the ZLDR.

A: Okay. Well, as -- as we do with -- with any other application, we obtained a copy of the most current and applicable zoning regulation, land use regulation or ordinance from that entity, whoever it may be -- in this case Charleston County -- and we -- we do our own independent review of that document in its

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entirety to try to determine if there is, you know, anything that's applicable or relevant to our decision in regard to zoning.

And so in this case we did that. It was -- it's zoned industrial and the zoning ordinance within Charleston County lays out the requirements for industrial zoning, tells you what type of activities are allowable under what conditions. And so we review all that and then we made a decision that this particular type of activity that's proposed with this application was consistent with the County zoning, the ZLDR.

Q: Now, when DHEC reviewed the proposed landfill against the ZLDR the first time --

A: Uh-huh (affirmatively responds).

Q: -- which was prior to 2009, the Judge's order in 2009, can you tell the Court how that ZLDR changed from the one that you reviewed to reissue this permit?

A: Sure. There was a -- a change in terms of whether certain uses required a special exception under the -- under the ordinance. And in the previous ordinance there were -- there was language about grandfathering a use

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where it would not -- if it was an existing use, it would not require a special exception. And then in this -- in the new revision, it -- it made it much more specific about which kind -- you know, what -- this type of use, whether or not it would require a special exception, whether it was existing or not -- or, you know, not a new use. So it got more -- I guess maybe a little bit more clarity or specificity on, you know, this type of use and -- and what -- what was required if it was an existing versus a new use.

Q: Okay. Let's talk a little bit about -- let's talk a little bit about the definition of "residence." I know you've testified to this before, but can you tell the Court how DHEC views -- or what is the meaning of "residence" within the regulation? Let me give you the exact regulation that I'm referring to, 61-107.19 -- hold on a second -- and it's -- okay, it's Part V, B.1.a. and I think you have the book up there.

A: Yeah, I've got the book.

(Off the Record)

Q: I'll let you read it.

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A: Okay. B.1.a., is that what you're referring to?

Q: Yes. What part is it?

A: It is -- well, A is General Provisions.

Q: I mean, is --

A: B is --

Q: -- is it Part I, II, III, IV in 19? I think it's Part --

A: I think it's Part --

Q: IV.

A: -- IV, because this is a Class Two, so should be Part IV.

Q: All right.

A: B.1.a. reads, "The boundary of the fill area shall not be located within 1,000 feet of any residence, school, day-care center, church, hospital, or publicly owned recreational park area."

Q: Okay. And the word "residence" there, does DHEC consider proposed or planned residences to be included within the meaning of "residence" within that regulation?

A: No.

Q: Okay. And is there a definition of the word "residence" within that regulation?

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A: No.

Q: Okay. So since there is no definition of "residence," how does DHEC define "residence" within the regulation?

A: Well, we -- we define "residence" as something that is occupied or, I guess, occupiable in the sense that it's legally occupiable and, you know, we -- you know, we have to make permitting decisions and we need to make those decisions on something that -- not -- not -- or not make them on something that may or may not happen in the future. So we're talking about making that based on a residence that is actually occupied or could be occupied.

Q: Okay. And is that how DHEC has defined "residence" in the past?

A: Yes.

Q: So has there been any deviation on how we -- on how DHEC, rather, has defined that word within that particular regulation?

A: No.

Q: Okay. Let's talk about -- tell us a little bit about -- and you may have mentioned this about -- about how we -- how we -- how DHEC receives the applicable ordinances, zoning

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ordinances and land use ordinances, and rules when DHEC is reviewing a proposed landfill application for consistency with zoning.

A: Okay. Well, that -- those applicable ordinances, including zoning, are submitted by the applicant as part of the application package and -- and then following us receiving -- as they -- you know, as an applicant submits a lot of information to us to -- to get a permit for any solid waste facility or to -- for us to render a decision. And so we -- we take what we're given and we review it in its entirety.

And we, also, you know, do things such as like online searches for the local government's database to determine if -- you know, if this appears to be the right -- you know, the right documents, up to date, if there's anything new, any revisions, that kind of thing. We look for all of that through -- through information, what -- basically whatever's available to us to confirm or verify.

Q: Okay. And so was that done with this particular landfill application?

A: Yes.

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Q: And so the ordinances came from Charleston County?
A: The applicant, yes, ma'am, they sent -- they sent us the -- the ordinances.
Q: Okay. And is that any different from what DHEC accepts from any other applicant?
A: No.
Q: So what you're saying is whenever an application comes in for a new permit or permit modification, then the applicant is the entity that submits the local ordinances --
A: That's correct.
Q: -- to DHEC?
A: That's correct. And then we confirm, as best we can through our research and through public comments, if there's anything else that, you know, might be out there that we should know about.
Q: Okay. In terms of the landfill site itself, does DHEC ever go to the site and look at the site with its, you know, own eyes?
A: Yes.
Q: Okay. And did that happen with this permit modification, meaning the latest one that was issued September 1st, 2011?

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A: Yes.
Q: Okay. And so when DHEC staff went to the site, what did it see? What was -- what did they observe? What was observed?
A: Well, we -- we didn't really see anything new or different from our previous visits and -- as it relates to the permit application or the decision.
Q: Okay. We've heard testimony here today that DHEC used outdated or very old information to make its consistency determination in regards to zoning. What would you say about that?
A: Well, there's a lot of information in our files that dates back to, you know, previous years. However, we've looked -- and we have looked at that information, but we've also looked at other information independently, as we do on all -- in all cases. We do our own independent reviews online and -- and however we need to gather information, we do that, including site visits, to make sure that what we have been given by the applicant is consistent with what we -- what else we can determine.
Q: So would you say that DHEC made its decision with recently available information?

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A: Yes.
Q: Okay. There's been some discussion about the fact that DHEC did not review all pertinent ordinances having to do with zoning and land use. And one of those ordinances is Ordinance 180 from Charleston County. Let me give you that.
Okay. This is Petitioner's Exhibit Nine. It's already been admitted. Okay. If you'll look at Section 10-22 of that ordinance.
A: (Witness complies.)
Q: And if you'll look at 10-22, number two, Sections D and E.
A: Yes.
Q: I believe that these are the specific -- the specific section of the ordinance that has been stated that DHEC did not review.
A: (Nods head affirmatively.)
Q: Can you read what it says for those -- for that section?
A: Well, section two is related to site location and it talks about "The disposal site shall...," and then D and E -- "...conform with the surrounding environment" and E is "...conform with future development of the

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area."
Q: Did DHEC -- did DHEC have this ordinance when it was reviewing the proposed landfill against the -- for the zoning regulations?
A: I do not recall seeing this before, other -- prior to my deposition last week.
Q: All right. And if you had seen this, how would it have been considered?
A: Well, it's -- the wording is -- is very general. No specific, you know, description of how to make sure something conforms. So, in my review, I would look to the more -- this is, I believe, as I was told, a 1974 ordinance and -- so I would look to how the County has implemented conformity through their zoning and other land use planning documents and ordinances. And so our review of --
MR. WALKER: Objection, Your Honor. He did not undertake -- he didn't even know about this ordinance. At this time, he's saying maybe what he would have done and it's all speculative because he didn't know -- he didn't even have this ordinance. It wasn't in the DHEC file.
What he's talking about is a hypothetical

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consistency review that never determined -- they never made a consistency determination whatsoever. So what he's doing, he's just speculating about what they would have done in the abstract, which is irrelevant. They -- they didn't do one.

MS. WILLIAMS: Your Honor --

THE COURT: Ms. Williams?

MS. WILLIAMS: Yes. What I would say is that -- and I can rephrase the question -- is -- is what Mr. Coleman, how he would have gone about incorporating this, if at all, if he had seen it, not just for this landfill application, but for any landfill application. If -- if he misses an ordinance that says this exact same thing right here, which is very general, it's a general statement, how do you incorporate -- or how would you incorporate a general statement such as these into your decision-making.

Perhaps he may not have incorporated it at all. I just want to give him the opportunity to say how DHEC normally handles this type of situation when an ordinance is missed, such as this one.

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MR. WALKER: The regulation requires a consistency determination by DHEC before it issues the permit. DHEC did not even know about, much less consider, this ordinance. The question is: Did they consider it? No, they didn't consider it.

This gentleman, who has tremendous experience, did not make a consistency determination and he can't cure that by making one on the stand today after the permit's been issued. That's like rendering a probable cause on a search warrant after the search has occurred. Purely speculative. It's undisputed they didn't consider it and didn't make a consistency determination based on this ordinance the way the law required.

MS. WILLIAMS: Your Honor --

THE COURT: Anything further on the objection?

MS. WILLIAMS: I'm sorry.

THE COURT: Anything further?

MS. WILLIAMS: No, except to say I can rephrase. I can change the question. I can rephrase the question.

THE COURT: Okay. Well, I am sustaining the objection on the question, as asked, and the

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answer that was being given and you can rephrase.

MS. WILLIAMS: All right.

Q: Okay. Mr. Coleman, you have already testified that you did not see this particular ordinance; is that correct?

A: Yes.

Q: Okay. But you have --

A: I don't recall seeing it. I mean, our files are thick, but I -- I'm not -- I don't have recollection of this.

Q: Okay. But I wanted to ask you, because it's been stated that you did not make a consistency determination on zoning, was a consistency determination made on zoning?

A: Yes.

Q: Okay. These -- you have seen this ordinance since -- I mean, since your deposition you saw this ordinance?

A: Yes.

Q: Okay. And the ordinance reads, "The disposal site shall conform with the surrounding environment and conform with future development of the area." How do you -- the word "conform" in this sentence, what do you make of that

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word?

A: Well, the -- DHEC doesn't make decisions for local governments on what conforms and what does not conform. Local governments do that through zoning and -- and so they have made decisions of what types of uses can be next to other types of land uses and they've made decisions on what types of buffers need to be placed between different types of uses. And so the local governments, through their zoning, make decisions on how -- what -- what is conforming, what conforms.

And -- and so in -- in the case with Charleston County, they have a very detailed zoning ordinance that talks about all the various uses, how those uses are to be applied.

So by reviewing that -- that document and making a decision, DHEC has determined that the permit that we issued is consistent with local zoning. And this generalized language is not applicable, in my mind, in the sense that it doesn't change anything and doesn't specify anything about, you know, the -- the requirements that the local zoning does not already cover.

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Q: Okay. So based on what you've just testified to, would you say that DHEC did, indeed, review the applicable zoning ordinances in regards to the proposed landfill and made a consistency determination on that?
A: Yes.
Q: There was some testimony earlier today in regards to there needs to be 100-foot buffer of vegetation --
A: (Nods head affirmatively.)
Q: -- between the adjacent properties and the landfill. Is that correct?
A: Along the property boundary, yes, there's a -- there's a requirement in the zoning for 100 foot with certain types of vegetation.
Q: Okay. And I believe that there's been some -- you know, some statements made that it was -- that the buffer, this vegetative buffer was not seen on the plans --
A: (Nods head affirmatively.)
Q: -- that were submitted by Charleston County; is that right?
A: Yes.
Q: Okay. And I don't believe -- and you correct me if I'm wrong -- that there is a requirement

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or that a vegetative buffer is listed as a special condition in the permit.
A: That's correct.
Q: Okay. So is DHEC required to place in the permit by way of general permit conditions or special permit conditions the requirements of the local government as it pertains to the landfill in a permit -- landfill permit?
A: No.
Q: Okay. And if those requirements are not listed in the general -- general section of the permit or the special conditions section of the permit, does that indicate that DHEC did not take into consideration that these things are required by the County?
A: No.
Q: County requirements for -- for a landfill that say that there needs to be a vegetative buffer, you know, along the boundary of the landfill, is that something that you -- that you would typically see in permit applications that you review for DHEC?
MR. WALKER: Your Honor, there have been a series of leading questions where she's just asked "yes" or "no" and made pieces of her argument to the

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witness and asked him to affirm it. We're all here trying to move through as quickly as possible, but we object to the last question as being leading, even though there were a whole series of leading questions leading up that. We want to hear from the witness and at this point all she's doing is asking a leading question and asking him to affirm it, so we object.
THE COURT: Okay. The objection is sustained.
Q: Okay. Mr. Coleman, what types of local requirements do you see in your position as director at DHEC as you review different permit -- landfill permit applications?
A: Well, they're, you know, highly variable from County to County and town to town, but the requirement to have a buffer or a vegetative buffer is -- is very common and the way we handle that is in our -- in our plan -- the plan that's submitted to DHEC, as I think we've noted earlier today, there is a 100-foot buffer designated, which is consistent with DHEC's buffer requirements. Also, it is consistent with the County's buffer requirements in terms of the distance. And

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there's nothing -- you know, when we make our review we make sure there's nothing in the -- you know, about the way the structures are placed and that type of thing within the DHEC application that would prohibit someone or make it -- make them unable to comply with the vegetation requirements. But the vegetative requirements such as this are common and -- and that's not something that is required to be done prior to the permitting.
For this -- a good example of how to think about that is if you -- if you're building a house and someone -- there may be an ordinance requiring you to grass the front yard and put in shrubbery, which is very common, but they don't make you do that before you get your building permit and they don't make you do that before you build the house, because that doesn't make any sense.
So what you do is you -- you realize those requirements are there. There's nothing impeding you from doing those requirements. And then it's up to the County to enforce their own zoning, which includes these buffer and shrubbery requirements. So that's -- I mean,

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that's generally how we view this. As long as it's -- it can be complied with in the scope of the project, then it's really up to the County to enforce that beyond that point.

MS. WILLIAMS: Okay. I have no further questions.

THE WITNESS: Thank you.

THE COURT: Mr. Dawson?

MR. FERRARA: I just have a couple of questions, Your Honor.

MR. COLEMAN - CROSS-EXAMINATION BY MR. FERRARA:

Q: Mr. Coleman, are you familiar with the South Carolina Solid Waste Policy and Management Act?

A: Yes.

Q: b d are you familiar with the purposes found within that Act?

A: Yes.

Q: Did DHEC review the permit in accordance with those purposes that are enumerated in the Act?

A: Yes, we did.

Q: And do those purposes of the Act embody the same concepts found in Charleston County's ordinance number 180 that was adopted in 1974?

A: That we read earlier, the -- the items that we read earlier?

Q: The items that you and your counsel were

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discussing earlier.

A: I mean, the -- the reason for permitting and reviewing permits and having specific requirements before you can get a permit is to protect public health and environment so that it will conform with -- with, you know, that mission. So yes, in that sense, yes.

MR. FERRARA: Thank you, Your Honor, no further questions.

THE COURT: Okay.

MR. WALKER: Thank you, Your Honor.

MR. COLEMAN - CROSS-EXAMINATION BY MR. WALKER:

Q: Mr. Coleman, you acknowledge that it's DHEC's responsibility to make sure that the permit is consistent with all local laws, zoning, land use and other local laws, correct?

A: The -- the way the law is -- the Solid Waste Policy Management Act states that is that we are responsible for issuing a permit that is consistent with applicable ordinances.

Q: All right. And the only way to make -- to find out or to figure out if it's consistent is to make a determination whether it's consistent, right?

A: Yes.

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Q: All right. Earlier in your direct examination, you said that after this matter was remanded by Judge Anderson, DHEC did not go back and redo any consistency determinations, except for a determination as to compliance with the Charleston County ZLDR, the zoning ordinance, correct?

A: Yes.

Q: All right. Now, you are fully familiar with the regulation that the permit was issued under in 2001, are you not, 61-107.19? You have a working familiarity with it. It's pretty common.

A: Well, I was, you know, confused by your question.

Q: Sorry. Do you --

A: Could you repeat the date? I think you put a date in there or something.

Q: Okay. I'll back up. The permit that DHEC issued September 1st, 2011, was issued under Regulation 61-107.19, which went into effect May 2008, correct?

A: That is the effective regulation, yes.

Q: And that has the section called "Permit Application Process," which is subpart D of

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Part I, correct?

A: Yes.

Q: And that was the section you were asked some questions about. In D.1 -- and you can turn to it in your book. Do you have the book handy?

A: I still have it.

Q: All right. If you look at D.1 and you go to number 2 -- do you have that in front of you? It says "Permit Application Process."

A: Yes.

Q: And then you go down to the third subparagraph under that, 2. Do you see that?

A: Okay. I'm with you.

Q: Okay.

A: What's the title of that?

Q: Well, it says "Determination of Need and Consistency," and subpart a. says, "Prior to submittal of a permit application to the Department for a new or expanded Class Two landfill ... the appellant [sic] shall provide documentation of," these various things.

A: Uh-huh (affirmatively responds).

Q: And number 2 is, "That the proposed landfill or landfill expansion is consistent with State and County/region solid waste management plans

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pursuant to S.C. Section 44-96-290(F)."
Correct?
A: Yes.
Q: And then subpart 3 says, "That the proposed landfill or landfill expansion is consistent with local zoning, land use, and other applicable ordinances pursuant to ... Section 44-96-290(F)." Correct?
A: Yes.
Q: All right. So there's a distinction made in the statute between the zoning ordinances, which is subpart 3, and the county or region solid waste management plan, correct?
A: Yes.
Q: All right. In this case you've testified to making a determination as to the zoning, correct? Consistency with local zoning.
A: Yes.
Q: You also testified that there was -- that you made all other consistency determinations. But, in fact, there was no determination as to consistency with Charleston County's solid waste management plan, was there?
A: Yes, there was.
Q: Well, is Exhibit Nine, the ordinance that we

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were just looking at, which is Ordinance 180, that establishes solid waste collection districts within Charleston County and to make rules and regulations governing use and collection of solid waste, that is part of the Charleston County's solid waste management plan; is it not?
A: I'm not certain.
Q: Well, can you look -- if you might look at the heading of that ordinance.
A: Where -- where are you looking?
Q: It would be on page two, right here (indicating).
A: Okay.
Q: And you go over to right-hand column. Do you see that?
A: An ordinance, Number 180, to establish solid waste collection, is that what you're regarding?
Q: That's a local solid waste management ordinance; is it not?
A: Is this from the 1974 ordinance that you're showing? Am I reading from that?
Q: That's when it was first passed, but it was in effect in Charleston County and remains in

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effect today.
A: Okay. But this is not the -- the County's solid waste management plan as directed by the Act that you're -- I'm not --
Q: Well, this is a solid waste -- this is a solid waste management ordinance, correct?
A: It's an ordinance that refers to solid waste. I can say that much by reading it here, yes.
Q: And it -- you have no reason to question that it's a valid local ordinance?
A: I don't have any knowledge otherwise.
Q: And since it was a valid local ordinance, you would have expected Charleston County, since it has an application, to submit it to you in the application, correct?
A: Say that again.
Q: Since the ordinance that I'm holding, which has been marked as Exhibit Nine, which was in effect throughout this whole process, deals with solid waste and, in particular, the siting of solid waste facilities, with other provisions, you would have expected, would you not, Charleston County to have submitted it to you among the ordinances that would have application to their application?

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A: It -- it certainly could have been.
Q: Well, if it deals with solid waste and it's a local ordinance, you need to consider it, don't you, to make sure that the application conforms with local law?
A: If it's applicable to our decision, we would need to consider it.
Q: And the first time you saw this ordinance was approximately a week ago when your deposition was taken, correct?
A: That was my first recollection, yes.
Q: It's not in DHEC's file, is it?
A: I don't know.
Q: You have no recollection --
A: Not to my knowledge.
Q: All right. So if it's not in the file, it would have been impossible for DHEC to make a determination as to the consistency of the application with this ordinance that's Exhibit Nine, correct?
A: If -- if it's not in our files, we had not seen it.
Q: So it would be impossible to have made a consistency determination that takes into account this ordinance before the permit was

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issued, correct?
A: Well, we have to take into account any applicable ordinances and I'm not sure this is one, but we did not -- we did not look at it, to my knowledge.
Q: And since you did not consider it, you did not consider whether this significant expansion of the landfill conformed with the surrounding environment, did you?
A: Yes, we did.
Q: What was the surrounding environment that you were considering?
A: We considered the zoning ordinances and adjacent uses per the local zoning. We also followed all the siting criteria in the DHEC solid waste management regulation as it relates to adjacent properties in terms of groundwater protection, protection of the public and et cetera. I mean, there's -- you know, there's a long list of -- of things that we do to consider public health and the environment and protecting those surrounding activities.
Q: Well, rather than spend time on that subpart, let's go to "conform with future development of the area." DHEC did not make a determination

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whether the significant expansion of the landfill conformed with future development of the area, did it?
A: Yes, we did.
Q: Tell me the criteria that DHEC used in its -- first of all, who made that determination? You?
A: Yes.
Q: All right. And what criteria did you use?
A: We -- we reviewed the Charleston County ZLDR to ensure that it was properly zoned under the Charleston County zoning ordinance in terms of what activities could -- could be undertaken on that property and -- and found that it was in compliance with that.
Q: So your answer is that you checked to see that this particular site in your estimation was in conformance with Charleston County zoning of this site?
A: That's correct.
Q: So you were not considering the area; you were just considering the site, correct?
A: Well, adjacent properties are the area.
Q: Not --
A: So you have to have -- I mean, there's --

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there's a relationship in the zoning between what this site is zoned and the adjacent properties and what buffers are required and whether they're vegetated and, et cetera, and there's also consideration about groundwater wells and how far they are from the site. There's minimum distances in our regulations. There's a -- there's a lot of things about this area. We look at, you know, the 1,000-foot buffer from a residence and, you know, airports. There's lots of things that -- that relate to the area surrounding the landfill.
Q: Would you agree that the Grand Bees property is within the area?
A: Yes.
Q: Did you know that Grand Bees property isn't under the County zoning ordinance; it's within -- within the City of Charleston?
A: I -- I -- I believe I recall that.
Q: Did you obtain the Grand Bees/Bees Landing PUD to review that in order to determine whether this application conformed with the future development as described in the PUD for Bees Landing?
A: We -- we have been aware of the PUD designation

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for some time.
Q: Well, it's on the plan. My question specifically -- because I didn't see it in the DHEC file. I'll change the question. DHEC did not obtain a copy of the PUD for this property as part of its determination that you're now testifying to whether the proposed project conformed with the future development of the area.
A: I don't recall having a copy of the PUD. I -- I've seen it and looked at it, but, you know, I can't recall specifically when or where.
Q: And with respect to the property that was talked about earlier, which is Long Savannah, also within the City of Charleston, that's under a PUD, DHEC didn't get a copy of the Long Savannah PUD or development agreement from the City of Charleston, did it?
A: Not to my knowledge.
Q: Those particular documents would have talked about the future development of those two areas, would they not?
A: I assume so.
Q: Okay. Now, tell me, since you're today saying that you made a determination that this almost

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100-foot increase in elevation of the landfill conformed with the future development of Grand Bees property -- not just 1,000 feet out, but Grand Bees property -- what criteria did you use when you made this decision that the increase of the landfill conformed with Grand Bees' plans for its property?

A: Well, my review of -- of that issue was limited to the authority that DHEC has to review that issue under the regulation and the Act and that is to -- I think I've mentioned a lot of these things, but there's -- specifically we have to make sure it's compliant with the -- the zoning. We have to look at groundwater wells, groundwater usage in the area, and those types of things within our authority. The regulation specifically lays out -- as it's promulgated, it lays out what our authority is and what we can consider, and we did that.

Q: But you did not -- did you or did you not consider the future residential use of Grand Bees --

A: No.

Q: -- as -- okay. Thank you.

Now, when Judge Anderson vacated the permit, he

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did not put any restrictions on what DHEC could do when it was reconsidering the application, did he?

A: Well, he ordered -- he ordered us to review it specifically subject to the ZLDR.

Q: He did not say when he remanded it after vacating the permit that DHEC could not check on other information or make other determinations, did he?

A: Only way I can answer that is to tell you that he said what he did say and we've already read that earlier. So there's nothing else in there that I'm aware of.

Q: You, as a trained and career official of DHEC, would have wanted when you issued the permit on September 1st, 2011, to make sure that all of the laws, the regulation was complied with at that time in every particular -- and by "regulation," I mean, 61-107.19 -- wouldn't you have?

A: Yes.

Q: And the only way that you can make sure that that regulation is being complied with in all particulars is to make sure immediately before you issue it that all of the various criteria

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have been satisfied, correct?

A: Well, complying with the regulation is inherent. How we do that is inherent on the wording on the regulation and what it says we can and can't do. So to the extent that we considered everything that we could consider at that point and we were aware of the surroundings, we did site visits, I think we made an appropriate, prudent and compliant decision. That's what we did.

Q: And, in fact, you went beyond what you said earlier, because you went back to the site to check to see, according to you, whether there had been any changes in the immediate vicinity, correct?

A: That's -- yes, that's common practice, just to -- we do that at most sites before we issue permits, just to -- sort of a last check to make sure that there's nothing different or new that we, you know, need to think of at the -- I guess in the final stages of our review.

Q: So you did, in fact, do the right thing and look beyond the limited analysis of the zoning ordinance that was in Judge Anderson's order, didn't you?

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A: No, I don't know that we considered anything beyond what we had authority to consider. What we do -- I mean, we -- we visit every landfill in the state every month and -- and then more, if necessary. So our -- the fact that we've been there and observed is not unusual.

Q: And when we were talking about the information that was submitted with this application, you would agree that the 2001 -- well, let me back up. Does -- do the regulations require a vicinity map to give you information on what the surrounding land uses are, such as this that was submitted as G-04?

A: Yes.

Q: Okay. So what I'm holding now is -- that was marked G-04, is actually something that's required to be submitted under the regulation.

A: Yes.

Q: Okay. And you will acknowledge that this 2001 aerial did not and does not -- well, it was never supplemented by the County, was it? It was never updated by the County.

A: I don't -- I don't recall another submittal that was entitled "vicinity map" like that, no.

Q: It was never updated -- it wasn't updated -- in

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2007, before you issued the permit, they never gave you a more current one, did they?
A: Not to my knowledge.
Q: In 2009, after the Judge vacated the permit, they didn't provide you a more current one, did they?
A: Did the County provide us one?
Q: Yes.
A: Not to my knowledge.
Q: And between the time that it was vacated and September 1, 2011, when the new permit was issued, they didn't provide you any more current vicinity map and aerial?
A: Not that I'm aware of.
Q: Do you agree that it's good practice to have current information in your files at the time you make a permit determination?
A: Yes.
Q: When you were talking about the vegetative -- let me turn to the vegetative buffer. You've read the ordinance in question, correct?
A: Yes.
Q: And you would agree that under the wording of that ordinance a vegetative buffer is required, correct, 100-foot vegetative buffer?

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A: Yes.
Q: And I believe with -- so that is what local -- the local zoning ordinance requires, correct?
A: Yes.
Q: And your testimony was that on matters like this, you leave it to the local government to enforce that ordinance, correct?
A: As far as landscaping and vegetative -- specific vegetation, yes.
Q: But with respect to local laws that would include zoning, a plan that did not include the 100-foot vegetative buffer adjacent to the adjoining residential property would not be in compliance with the ZLDR, correct?
A: ZLDR does require a 100-foot buffer and -- as do DHEC regulations, so there would -- there would be a requirement for that, yes.
Q: But a key distinction that the County buffer is vegetative with very much -- with specific information about what needs to be planted.
A: Yes.
Q: Really, the DHEC's buffer is the setback, right?
A: (Nods head affirmatively.)
Q: Fair to say?

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A: Okay.
Q: Back to the question. If -- well, in this case, since the plans that were approved and authorized the County to proceed did not contain that 100-foot vegetative buffer required by the County ordinance, then the plans that were approved were not in accordance with that provision of the local zoning law, correct?
A: Plans submitted to DHEC?
Q: Yes, sir, the ones that you approved.
A: As I recall, they did include a 100-foot buffer.
Q: Well, we can -- I don't want to prolong this.
A: Uh-huh (affirmatively responds).
Q: But the County ordinance, we agreed, requires a vegetative buffer.
A: Right.
Q: The plan that DHEC had did not show a vegetative buffer. It showed 100-foot setback of the toe of the mound from the property line. There was no planting plan, no landscaping plan for that 100-foot area with the permit application, was there?
A: Well, as I testified, something like

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landscaping and vegetation requirements are an item that we just need to make sure, from a DHEC standpoint, they can be complied with. And -- and there's nothing inhibiting that requirement whenever we issue our permit so that the County or the applicant or whoever it might be can proceed to comply with planning the vegetation.
Q: I think I understand. So the philosophy is if it's a requirement that can be complied with later on, even though it's a violation, it can be cured after the permit's issued, correct?
A: No.
Q: Is that what you're saying?
A: No. No, that's not what I'm saying.
Q: What's the difference between what I said and what you just said?
A: I'm saying that if the County requires someone to plant vegetation in a buffer, as long as the buffer is there when we issue the permit, we consider that to be compliant with the local zoning in the sense that they can comply. We're not -- DHEC does not oversee the planting of landscaping and vegetation later.
Q: I'm not suggesting that it does. But it could

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determine that without the vegetative plan for the buffer that the plan, as submitted to DHEC, was not in compliance with local zoning. It could do that; could it not?
A: We view the plan as compliant because it included the 100-foot buffer.
Q: Now, you were saying that you would just leave it to the local government to make sure that something like this is enforced?
A: Such as landscaping and vegetation, yes.
Q: So what you're saying is that DHEC would leave it to the County to enforce the County ordinance against the County, in this instance?
A: Or any other applicant, for that matter. It may not be a County.
Q: But in this particular instance, what you're saying is --
A: Yes.
Q: -- you were going to leave it to the County to enforce a County ordinance against the County, right?
A: If they determined that ordinance to be applicable in this case, then it is up to them to enforce it, yes.
Q: And that -- that whole thing about leaving it

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to the County to enforce its own zoning regulations didn't work out very well the first time with respect to the special exception, did it?
A: I don't think it's the same situation at all.
Q: Now, would you agree that the modification as proposed that was permitted is a significant modification to the C&D map?
A: Yes.
Q: It's going to take it from a maximum elevation of 74 feet mean sea level to 168 feet mean sea level.
A: Yes.
Q: Increase the footprint five and a half acres.
A: Yes.
Q: Going to increase the capacity from around 2,500,000 cubic yards to around five million cubic yards, correct?
A: That sounds about right.
Q: And based on the application, as I read it, the -- it may take up to ten years to -- that's ten years' worth of fill at 200,000 tons a year, correct?
A: Okay.
Q: A decade of operation.

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A: Okay.
Q: All right. And you heard some testimony this morning and you've reviewed the plans. The plans show that part of the access road on the mound goes across the mound on the side of Grand Bees' property, correct?
A: I do recall a road, yeah, I believe --
Q: All right.
A: -- an access road going around that side, yes.
Q: And that road is going to be used by bulldozers, correct?
A: Possibly so, yes.
Q: Dump trucks?
A: I assume so.
Q: Loaders?
A: Yes.
Q: And potentially other heavy equipment, correct?
A: Yes.
Q: All right. And you would agree that that significant activity, the noise associated with that and the -- and the other things that are going on, the noise and the visual, is going to be worse when all this is happening above the tree line for the neighbors next door, correct?
A: I don't know.

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Q: You don't think it will?
A: I'm not -- not certain. I mean, as -- as the landfill progresses and becomes higher, it also moves further away from the Grand Bees side of the property. So I'm not certain. I think that's kind of a subjective statement.
Q: You think it's subjective --
A: Uh-huh (affirmatively responds), yes.
Q: -- that once the equipment gets above tree line that there would be significant noise and other sound intrusion and perhaps dust on the adjoining property?
A: On which adjoining property?
Q: Grand Bees Development.
A: I think it's moving further away from Grand Bees property at the same time, so I'm not certain how --
Q: We're just talking about the slope of the very steep mound, correct?
A: We're -- we're referring to as the landfill increases in height.
Q: Now, you're saying you determined that this increase, in your mind, conforms with the surrounding area; is that what you're saying?
A: I'm saying that --

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Q: Or not?
A: -- by our review of the application in its entirety, which included the zoning and other factors, we've determined that it -- to the extent that we have authority to make that determination under the regulation, that we've made that determination, yes.
Q: Is there any expansion either in height or width or size that you would feel is not in conformity with the land use of the surrounding area? Could it go to 300 feet and still be in conformity, in your estimation?
A: In this case, it -- no, it could not.
Q: Where's the cutoff? The 168's okay. Where, in your estimation, based on your subjective criteria, is the cutoff?
A: The -- the County zoning ordinance specifically has and lists no maximum height. But the height of this particular landfill is limited by the size of the footprint, because it has a maximum slope requirement of three to one, and so it can't -- it's -- you know, in terms -- and it's -- the footprint is -- is locked in in terms of the area that they have to expand because it's surrounded by a municipal solid

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waste landfill that is of the same height -- or will be of the same height. So the footprint of this really can't grow much, if any, so I think the height is -- is probably maxed out where it is.
Q: The -- the height that they applied for is the maximum that they could reach given the footprint of the base of the mound, correct?
A: Roughly. I mean, you know, there may be a little bit of room to work, but I think primarily they were looking at designing that footprint with a three-to-one slope. That's my recollection.
Q: Have you ever been on the development side of something like this? Have you been involved in a business like Mr. Bush's, developing residential property?
A: No.
Q: So you would have no experience from the adjoining property owner's perspective who's putting in a residential development whether some significant increase to the landfill is in conformance with his land use plan?
A: No, nor do I have any authority to consider that.

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Q: All right. And you would agree that the residential doesn't in any way impair -- the residential adjacent to the landfill does not in any way impair the operation of the C&D landfill.
A: I'm not following your question.
Q: Does having residential next to a C&D landfill in any way impair the ability to operate that landfill?
A: I'm not -- I'm not even sure that's -- I don't understand the relevance of that to my -- in my purview, I don't understand --
Q: Well, what I'm getting at is, with respect to the operation of the landfill, it really doesn't matter what's next door because the landfill is going to go about its business and what goes on next door is not going to infringe on the ability to conduct the landfill operation, will it?
A: I don't know what they're doing next door. I have no idea.
Q: Well, certainly residential doesn't, does it?
A: Well, I don't know what they do, I mean what the residents do. Depends on what they're doing.

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Q: Building houses --
A: I mean, if they're shooting fireworks over there that are catching it on fire, maybe -- I don't know. Your question is just impossible to answer.
Q: Well, I'll rephrase it.
A: Okay.
Q: Would you agree that the residential next to the C&D mound does not impair the ability for the C&D mound to operate, but, on the other hand, having an enormous growing landfill next to residential does impair the ability of the residential developer next door to realize his project? Would you agree with that?
A: I don't know.
Q: Finally, I want to talk about this word "residence" we've heard so much about. The regulation does not define "residence," does it?
A: No.
Q: It has a whole host, several pages of definitions. Never gets to a definition of "residence."
A: That's right.
Q: What you're talking about is not a definition

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that's been set forth in a decision by the DHEC board, is it?
A: You mean has the DHEC board set forth a definition of "residence"?
Q: Has the -- the DHEC board has not formally adopted any resolution that sets forth what it interprets the word "residence" to mean for purposes of the applicable regulation, has it?
A: Not to my knowledge.
Q: So when we're talking about this test that you described, this is essentially your test.
A: Well, I have to -- I have to base my permitting decisions on something that I have authority to -- to base them on. And in terms of this particular question, I have to base them on something that is real. And so we have decided to use the definition -- the plain dictionary, plain language definition of "residence," which is where someone lives or could live. And in terms of what may or may not happen in the future, it's very difficult to base a decision on something that may or may not happen in the future. So we have chosen and consistently applied the definition that we have stated.
Q: What is so -- what is so difficult about basing

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a decision on something that is as plain as day and is as inevitable as the adjoining land use, which is residential land use under a PUD? You act like that's something speculative. It's not speculative, is it?
A: Yes, it is. I think it's speculative. I see it change all the time. I see it constantly. Development land use plans change constantly. It takes a stroke of a county council's pen over one meeting or three meetings to change that. It changes constantly. We see that all the time.
Q: The use that you had to consider --
A: Uh-huh (affirmatively responds).
Q: -- next door to Grand Bees was residential use.
A: It's currently zoned residential, for residential use.
Q: And the reasonable assumption is that it's going to be used for residential use if it's zoned residential use, isn't it?
A: That is the current plan, as far as I'm aware.
Q: My client went through the City of Charleston, actually got a site plan approved based on that residential use, correct?
A: Yes, that's what I heard.

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Q: So that's a known fact, not a hypothetical.
A: It is a -- I'm assuming I can say it's a fact that he plans to develop residential homes on that property. That's what I have heard.
Q: Okay. Now, let's go to your rule. If it's new construction, as I understand it, it has to be habitable and that would require a certificate of occupancy, correct?
A: Yes, uh-huh (affirmatively responds).
Q: Okay. So under your rule -- it's not in the regulations -- if Mr. Bush had actually gone out there and gone beyond the engineering, which he did, and put in the roads and the water and sewer and subdivided the lots, but not built the houses, you don't take that into account, do you? Because he doesn't have a certificate of occupancy.
A: No, that's correct. There's no -- you're not saying there's -- you're saying there's no houses there. You're saying --
Q: I'm saying he's gone to the expense of not only master planning it, having the master plan approved, engineering it, going where he is now, but going even farther and putting it on the ground, paving the roads, putting in the

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curb and gutter, putting in water and sewer, all the taps and getting a subdivision plat approved that subdivides it into residential lots. You would say, under your interpretation of the regulation, that even if that was in the 1,000 feet, you can still proceed.
A: I'm saying with -- under the regulation that I work under and the authority that I have under that regulation, I would not be able to consider that a residence.
Q: You couldn't consider that?
A: As a residence, no.
Q: All right. Same scenario, and if they'd actually built most of the structure and had a roof on it, every one of the houses in there, since a certificate of occupancy had not been issued and it was not subject -- was not habitable, then you're saying under your interpretation you couldn't consider that, could you?
A: Well, I mean, I'm --
Q: That's not a residence.
A: -- I'm talking about your case or a hypothetical case? I'm not sure, but --
Q: Hypothetical.

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A: -- this -- I mean, that's what our -- you know, the way our process is, is we do, you know, public noticing. We have to be consistent with county zoning. We have certain guidelines that we follow and if they don't include something that someone doesn't like or upsets someone, we don't have the authority to consider it. We follow the guidelines.
Q: And back to my question, under the -- the test that you said you used --
A: Uh-huh (affirmatively responds).
Q: -- if he had done all that and he had put up the structures, almost completed them and had a roof on them, in your estimation they would not qualify as residences even though they were within a 1,000 feet of the landfill -- excuse me, within 1,000 feet of the C&D mound.
A: Uh-huh (affirmatively responds). Well, I mean, I think it depends on how things played out through the process, because if there was a residential development that far along, I think we'd be in a different situation. So I don't think it's an applicable question or a really useful hypothetical question, but we have met -- we have stated that we used the -- the

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definition of a "residence" as it being able to be occupied, which in one scenario could be a certificate of occupancy or some type of document like that that would be issued to the builder or the resident.
Q: With new construction, it's always going to be a certificate of occupancy.
A: Okay.
Q: And from what you said under your standard, everything can be out of the ground, it can be a day before the certificate of occupancy, those 100 houses can be within 1,000 feet of the toe of mound, yet they would not count as residences since they were not legally habitable at that time, correct?
A: I don't know how to answer an unrealistic question like that. One hundred houses ready, but not quite having -- I mean, at the same time. That's not realistic.
Q: It could be one; it could be a hundred.
A: Okay.
Q: But under your standard that you apply it's not in the regulations, since they did not have the -- one or the 100 didn't have a certificate of occupy, it wouldn't count as a residence

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within -- even if it was within 1,000 feet of the toe of the C&D mound --
A: We have --
Q: -- correct?
A: -- stated that we would use certificate of occupancy, or something similar, to determine whether it was legally habitable, yes.
Q: The ordinance that we were looking at earlier, which is Exhibit Nine, the one that we talked about at the beginning of your examination --
A: Yes.
Q: -- that's not part of the ZLDR, is it?
A: No, I don't believe it is.
Q: Thank you.
MR. WALKER: That's all we have at this time.
THE COURT: Okay. Thank you. Before you do any redirect, let's take a ten-minute break.
(Off the Record from 4:37 to 4:52 p.m.)
THE COURT: Okay. Ms. Williams.
MS. WILLIAMS: Thank you. I just have a couple of questions, Your Honor.
THE COURT: Sure.
MR. COLEMAN - REDIRECT EXAMINATION BY MS. WILLIAMS:
Q: Mr. Coleman, I wanted to ask you: Does -- in making a consistency determination, does DHEC

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only rely upon documentation submitted by the applicant for a proposed landfill?
A: No.
Q: Okay. What -- if they -- if DHEC doesn't only rely on documentation and information submitted by the applicant, what else would DHEC rely on in making a consistency determination for zoning?
A: For zoning?
Q: Yes.
A: Okay. Well, we would look -- you know, we would do our own independent research in terms of the ordinances that the county may have on file. Maps, aerial photographs, you know, those types of things that we look at independently that may not be submitted to us that we just look at to verify and expand our knowledge of -- of the subject.
Q: It was mentioned earlier that the applicant had sent in to DHEC an aerial photo dated 2001. I believe that's correct?
A: Yes.
Q: Okay. And did DHEC look at anything beyond -- I mean, aerial photo beyond 2001?
A: Yes. Yeah, we -- we looked at numerous aerial

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photographs throughout the process, you know, that were more updated through time, you know, as we went forward.
Q: And that would have been prior to the issuance of the permit modification on September 1st, 2011; is that correct?
A: Yes.
Q: Okay. I wanted to ask you, Mr. Walker was asking you about a certificate of occupancy --
A: (Nods head affirmatively.)
Q: -- and when DHEC would consider a certificate of occupancy. I think he asked you would you consider it right up until the permit was issued; is that correct? Is that what you were asked?
A: Would -- would we consider --
Q: Would DHEC consider a certificate of occupancy --
A: Yes. I mean, if someone received a certificate of occupancy right up to our decision, like the day prior to, we would have to consider that in our decision, yes.
Q: Okay. Let me ask you, you said right up until the -- our decision?
A: Uh-huh (affirmatively responds).

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Q: Which decision are you referring to? Are you referring to a determination on buffers or are you -- are you talking about a decision on the permit, actually issuing?
A: I'm -- I'm talking about, under the current regulation, a decision on buffers determination.
Q: And --
MS. WILLIAMS: May I approach?
THE COURT: Yes.
Q: Okay. I want you to look at -- if you'll share with the Court that regulation that you just referred to, because we want to make it clear to the Court when DHEC would cut off our review as it pertains to a certificate of occupancy for buffer -- buffer consistency determination.
A: Well, under "Buffer Requirement," it says, "The applicant shall demonstrate that it meets the buffer requirement set forth in Part IV, Section B.1.a. of this regulation at the time of submittal of the demonstration."
Q: Okay. So can you kind of put that in layman's terms for the Court what that means?
A: At the time that -- that they submit the information to us and they make that

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demonstration to us, then that's the time frame that we're supposed to look at.
Q: "They" meaning the applicant?
A: The applicant, yes, uh-huh (affirmatively responds).
MS. WILLIAMS: That's all I have. Thank you.
THE COURT: Mr. Dawson, Mr. Ferrara?
MR. FERRARA: Nothing. Your Honor.
THE COURT: Nothing, okay. Thank you.
MR. WALKER: Nothing further. Thank you.
THE COURT: Nothing further for this witness? Okay. Thank you, Mr. Coleman. You're excused.
(Witness excused.)
THE COURT: Ms. Williams, do you have any more?
MS. WILLIAMS: No, Your Honor. Mr. Coleman was our only witness.
THE COURT: Okay.
MS. WILLIAMS: We rest our case.
THE COURT: Okay. Very good. Mr. Dawson, does the City have any witness?
MR. DAWSON: No witnesses.
THE COURT: No witness for Charleston. Okay. Anything in reply?
MR. WALKER: One second, Your Honor.
MS. WILLIAMS: Sure.

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MR. WALKER: Petitioner has no rebuttal, Your Honor.
THE COURT: No rebuttal? Okay. Thank you.
MS. WILLIAMS: Your Honor, yesterday DHEC filed a return to Petitioner's trial brief and this morning we did file and so we wanted to submit this to you.
THE COURT: Okay.
MS. WILLIAMS: Yes, it was filed this morning. And the opposing counsel has a copy of it.
THE COURT: Okay.
MS. WILLIAMS: Of the filing?
THE COURT: Of the filing.
MS. WILLIAMS: It's the same thing.
THE COURT: Okay. Are we ready to proceed to closing?
MR. KHAN: Your Honor, one question, as well.
THE COURT: Yes.
MR. KHAN: I gave your clerk a copy -- our copy of our brief. I just want to make sure that was part of the record.
THE COURT: It is.
MR. KHAN: I didn't need to do anything else. Okay. Thank you so much.
THE COURT: Let me ask you all something before we proceed to closing arguments: Have the parties

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attempted in any way to reach some type of compromise?

MS. WILLIAMS: I don't think so, Your Honor. I don't know how we would compromise this particular situation. We haven't been approached for a compromise and we haven't approached them, either.

THE COURT: Because I get a sense here that the Petitioners aren't -- I mean, that they are understanding that there is a need to maybe expand the landfill, but I -- I get the impression that their biggest objection is the extent that it goes upward. And I wasn't sure if there had been any discussion about some compromise on that that would allow something that they could live with, but also something that also Charleston could live with.

MS. WILLIAMS: Understand, Your Honor, and DHEC, our job is to just review the applications that come in to us. So we feel that Charleston County would have to kind of meet with Grand Bees and, you know, try to, you know, come to some kind of understanding about, you know, putting in a different application for permit modification.

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You know, we will review whatever is submitted to us.

THE COURT: Okay.

MR. DAWSON: Your Honor, to respond, it's been some time since we've had any discussions of that -- that kind of character, so, as I suspect Mr. Walker would say, there's always room to discuss. Whether our actual clients would be willing to compromise, I don't know that answer right now.

THE COURT: Okay. It was something I wanted to put out there, okay?

MR. DAWSON: Yes, ma'am.

THE COURT: Okay. We can move on to closing.

MR. WALKER: Thank you, Your Honor.

CLOSING ARGUMENT BY MR. WALKER:

MR. WALKER: On behalf of Grand Bees I'd like to thank you for all the attention that you have applied to this matter and the study that you've given it and will give it. This is a matter of vital significance to Grand Bees. Grand Bees bought this property in 2004, fully expecting that the landfill would stay somewhere at a reasonable range of elevation, and, lo and behold, four years later they find

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out, through an anonymous email, that a permit's been issued to take it from 68 feet mean sea level to 174 feet mean sea level. And it doesn't take Taylor Bush's testimony for us to know that a radical expansion like that is going to have some dire consequences for his residential development. We started with a landfill that would be partially, if not all -- all, obscured by the tree line to now have something that extends close to 100 feet above the tree line.

On top of that, as the application shows and as was acknowledged here, there are going to be activities going on six days a week, which is in the permit in evidence. There will be heavy equipment going up and down that mound all day long. It's going to be a -- not just a significant eyesore at the time, but it's going to be a real -- it is going to be constantly making noise, dust, everything you can imagine. Despite the best intentions of our regulatory authorities, that's just the nature of a big C&D landfill.

We, as you just mentioned, are not opposed to any expansion of this landfill. In fact, the

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regulations provide that it can be expanded, but under certain setbacks and with full compliance with the applicable laws. For instance in this case, if they set back the expansion 1,000 feet from the property line and otherwise complied with the zoning, then they could expand it. There are all kinds of ways to where they could be in compliance.

But in this instance we have a County which wants -- which also regulates itself and that presents some challenges, because the County's self-interest is to get this landfill up. It doesn't serve the County's self-interest to stop along the way for a special exemption, which is what Judge Anderson ruled on, or, in this case, to abide by the other requirements of local laws.

The regulation is clear and the regulation is nothing more, really, than what the statute itself says. There has to be consistency with local laws. In this case, it's not just Grand Bees saying there's not consistency, but DHEC itself, through Mr. Coleman, has acknowledged that -- Mr. Coleman has acknowledged the plan that was submitted does not include the

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100-foot vegetative buffer that is required by local ordinances. He acknowledged that. It has a setback that they call a buffer, but not a vegetative buffer. That's a violation.
Further, the statute says and the ordinance and the regulation says that the Department is to consider all other applicable laws.
As we went through in almost painful detail, DHEC did not even consider one of the local solid waste ordinances that directly pertains.
And when we went over it, DHEC took the position, "Well, we considered it, even though we didn't know about it." But he ultimately admitted that they didn't do a consistency determination with respect to that ordinance.
Then when we got into the substance of the ordinance, which says that the landfill -- a major modification to a landfill needs to be in conformance with the future development of the area, he acknowledged that he didn't get any -- have any information in his file from the City of Charleston as the PUD for Grand Bees. He didn't have any information in his file as to the PUD for Long Savannah, which came online in 2009, and effectively what he came down to say

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was, "We don't consider future development because it's hypothetical. It can change."
That is not what the ordinance says. The ordinance says "future development." The answer was, "Well, it says residential and even though he's got his plan, that could change."
That's not what the ordinance says. It says "conform with future development."
And the evidence overwhelmingly -- and I think this is just natural knowledge -- but overwhelmingly shows that an expansion of this magnitude is going to have significant adverse impacts on the future development and maybe not only make it unprofitable, but impossible.
The County made much of the recent amendment to the PUD. That amendment was an effort to find a lifesaver, which was to find a way to sell some land to an apartment developer on the other side and to go with a possible alternative residential development with smaller lots that at least might let them sell it for less money and put something over there if, in fact, this landfill is allowed to be permitted contrary to the regulations.
With respect to -- and just on those two alone,

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the absence of conformity with the local ordinances, that alone requires the permit be vacated. Those two alone.
On top of that, we have said that the only -- and they've argued that the only reasonable construction of "residence" is a future planned permitted planned use for residence.
DHEC has taken the position that -- through Mr. Coleman, that that requires that there be a house with a certificate of occupancy.
That's not anywhere in the regulations.
For that to make any sense, for the regulation to make any sense, it would have to honor a planned end use of residential development, especially where a site plan has been approved. There's actually been an entitlement or vesting of that right. And that's what had happened at this property next door that Grand Bees owned.
And the reason that -- that DHEC didn't know about it is they didn't go next door -- you heard again and again, they only looked at what the County required. But the County zoning and land use did not apply. The -- the adjoining property was in the City of Charleston. And so they never really considered the area, which

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they were required to consider.
If you go with the DHEC ad hoc Kent Coleman rule, which it has to be a house with a certificate of occupancy, then you end up in all these implausible situations that we talked about at the end of his testimony.
Somebody can spend, just as Mr. Bush did, eight million dollars and get his land entitled, have a site plan approved and DHEC, because he doesn't have a certificate of occupancy, just ignores that and says there's no residence there.
We -- we recognize that the word "residence" causes problems. And it causes problems thanks to our Legislature who didn't define it. But the only way that it makes practical sense -- and we make this argument more elegantly in our trial verdict -- is to construe it to mean a planned end use that's entitled.
I am not going to go through everything again. You were on top of this whole case and we have confidence you get it and we know you get it.
The preponderance of the evidence as demonstrated today establishes that DHEC violated its own statute, Section 44-96-290(F),

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which requires that -- that the permit be -- that the permitted project be in full compliance with local laws and zoning. And, also, we submit that its interpretation of the setback of 1,000, that they call a buffer, was also erroneous because of the injustice, the unfairness and the unreasonableness of that regulation under these and similar circumstances. We would be happy to prepare a proposed order, if Your Honor would like a proposed order, and if you have any questions, I stand ready to answer them. If you don't, I'll sit down.

THE COURT: Thank you, Mr. Walker.

MR. WALKER: Thank you.

THE COURT: Ms. Williams?

MS. WILLIAMS: Thank you, Your Honor.

CLOSING ARGUMENT BY MS. WILLIAMS:

MS. WILLIAMS: Your Honor, DHEC thanks you, as well, for your attention to this matter and we submit to you today that DHEC -- under its authority and under the direction and document of Judge Anderson, that DHEC reviewed all applicable local zoning, land use and other applicable local ordinances. I think the key here in that

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particular statement is "applicable." DHEC reviewed the ZLDR, the zoning land development regulations of Charleston County against the proposed landfill and we made the right decision to reissue the permit modification for that landfill. Your Honor, we did a thorough review of the ZLDR and we are confident in our decision.

In regards to the "residence" issue, DHEC -- and Mr. Coleman testified to this -- that we use the -- there is no definition for "residence" in the -- in the regulation; therefore, DHEC uses the common and -- common meaning and usage of that word, which is a dwelling place where someone lives or where someone could live.

Grand Bees has indicated that you are not to defer to DHEC's interpretation of the regulation and we submit to Your Honor that there is an instructive decision from the Supreme Court, a recent Supreme Court decision on that, on whether you can look to DHEC's staff decision and rely on that. The case is Kim Murphy, Appellant, vs. South Carolina Department of Health & Environmental Control

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and District 5 of Lexington and Richland Counties. And in this particular situation, Your Honor, the Supreme Court relied upon a DHEC staff person who interpreted what was meant by "vicinity of the project." "Vicinity" was not defined in the regulations. And the Court said, "Furthermore, we give deference in interpretation of a regulation by the agency charged with its enforcement."

"During her testimony, Jennifer Haynes, who had been the DHEC project manager for the Chapin High School WQC, clarified that DHEC interpreted the 'vicinity of the project' on a case by case basis according to its best professional judgment as each project is different. Thus, Haynes testified that when applying Regulation 61-101, she 'considered the vicinity [to include] more than just the 727 feet of stream' and noted that although she did not have an exact area, it included many miles. Because this interpretation is both reasonable and consistent with the plain language of the regulation, we see no reason to deviate from DHEC's construction and application."

Your Honor, I submit to you that DHEC's

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interpretation of the word "residence" in the regulation is both reasonable and consistent and that you can rely upon our construction of -- I mean, our meaning of that word. It is not -- in this particular case, the DHEC board did not hear this case. So all the Court has to rely on was the DHEC staff's decision in determination of that word. And so I believe in this situation analogous and that you can rely upon Mr. Kent Coleman's interpretation of the word "residence."

I believe that Grand Bees is forcing the construction of the word "residence" to include, you know, proposed and planned residences -- I'm sorry. Yes, and -- and that that's not required, because the word is not ambiguous. The word is clear, "residence." You use the plain language meaning of the word. You go to the dictionary and it will tell you it means where someone lives, a dwelling place. If you were to rely upon what Grand Bees is offering, it would be an absurd result because, as I stated earlier, they bought the property in 2004. In 2008, when DHEC first issued the permit modification, there were no residences

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there. Four years had lapsed. Here it is 2012. There are still no residences there. Even though they have -- the property is zoned for residential use, we could go into 2040 and there could still be no residences there.
And I think what's important to know is that the landfill was there first. Mr. Bush decided to buy property near a landfill. He -- he admitted he took a chance, he took a gamble, knowing that the landfill was there, there was potential for change for that landfill.
Your Honor, it has been stated that just on the fact that DHEC did not consider Ordinance 180 that the permit modification should be vacated. DHEC strongly disagrees with that because, again, the important word here is "applicable" local ordinances.
Mr. Coleman testified that he looked at the ZLDR as a -- he looked at the ZLDR to -- to see if the landfill conformed with the surrounding environment and conformed with future development. The two sentences in Ordinance 180 are very general sentences which provide no guidance to Mr. Coleman in his review of this ordinance; however, the ZLDR shows what the

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property is zoned for, what the landfill is zoned for and information that DHEC -- that was submitted to DHEC shows the information about the surrounding properties, what's there, what's not there.
He testified he looked at aerial photographs to see what was there. So all of that was considered in the consistency determination. Even though DHEC did not look at this particular ordinance, everything that DHEC needed to look at to make its decision to determine if the landfill was consistent with the zoning, it had in the ZLDR. It needed to look no further.
Your Honor, I do want to bring your attention to -- I want to bring your attention to the I-77 Properties case, which I think -- this is a case that Grand Bees cited in their trial brief. However, I think that it's more instructive for you in terms of viewing this situation favorable -- in DHEC's favor, because the situation here is a lady received a permit for a septic tank and there was an application for a landfill in with DHEC. I-77 Properties had a landfill application with DHEC. And I-77

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Properties felt that because the lady had gotten a permit for a septic tank, that that was going to destroy the buffer situation that they had.
And the Court said that -- the Court said there wasn't -- there was not a -- an actual -- a concrete proof that a residence was going to be placed where the septic tank was. And this is the situation that we have here. There's no actual concrete information saying that there is going to be a residence or residences that -- in the Grand Bees area that's planned residential.
Yes, they do have -- it is zoned for residential. But, again, we don't know when or if a residence will be placed there, so, therefore, it would be an absurd result to continue to -- to hold up the modification of the landfill based on the fact that there may or may not be a residence on that property one day.
So, therefore, Your Honor, I would just ask that you review that particular case and I would also ask that you would -- that you would find that DHEC made a proper decision in

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reissuing the permit modification and that the -- the permit modification should not be vacated. Thank you very much.
THE COURT: Ms. Williams, let me ask you a question. If DHEC, just hypothetically, if they found that -- because of the planned development next door at Grand Bees, if they found that that -- they needed to establish that 1,000 feet buffer, as well as limit the height of the landfill, would that have destroyed Charleston County's plan to expand the landfill or would it just have meant that they would have to go back to the drawing board and maybe re-engineer the ...
MS. WILLIAMS: Okay. So you're asking me if -- if DHEC --
THE COURT: If they had -- if they had actually declined to issue the permit modification --
MS. WILLIAMS: Because we --
THE COURT: -- because of --
MS. WILLIAMS: -- would have looked at the residence -- at the planned residences?
THE COURT: Yes.
MS. WILLIAMS: If -- if we had to -- if we decided that the planned residences were actually

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residences --
THE COURT: Uh-huh (affirmatively responds).
MS. WILLIAMS: -- then we would not have issued the permit because they wouldn't have been consistent with the buffer. And so, yes, that would mean that they would have to change their permit.
THE COURT: But it would not have said that they -- it would not mean that they could not expand?
MS. WILLIAMS: Okay. I think what I'm being told is that this -- tell me again.
(Off the Record)
MS. WILLIAMS: Okay. What I'm being told is that it would -- if -- if they had to cut -- if they had to go back and redesign the landfill and ask for a different size, lower the size of the landfill, that it wouldn't be economically feasible for them to do that --
THE COURT: Okay.
MS. WILLIAMS: -- in this particular case. Not in all cases, but in this case.
(Off the Record)
MS. WILLIAMS: Let me just say one more thing. I'm being told that because we don't know where the houses are going to go physically, we wouldn't

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know where to start counting the 1,000 feet buffer. We wouldn't know where to start counting from. So everything is very speculative and up in the air without having an actual residence to -- to measure by. Did that make sense to you or do you want me to elaborate some more on that?
THE COURT: No.
MS. WILLIAMS: Okay.
THE COURT: I mean, because I understand from the testimony that the expansion, the lateral expansion, would not be on the side of Grand Bees property; it would be on the other side. So -- okay.
CLOSING ARGUMENT OF MR. DAWSON:
MR. DAWSON: Your Honor, if I may proceed. I would be remiss if I didn't say, as counsel before me said, we appreciate your time and attention to this issue. I know it's difficult to spend the day talking about garbage, so I appreciate your interest in the subject matter.
I want to start by addressing the question you asked DHEC. You may not want to hear from me on this matter, but I figured I'd take an opportunity --

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THE COURT: Oh, no, I do.
MR. DAWSON: -- to -- to just tell you, once again, I had attempted to show you a picture in evidence, which was plan sheet G-01, which gives a layout of the site, and I showed the Court that the proposed expansion area's about five and a half acres on the back side or the interior of the lot.
When the Court has an opportunity, you'll also see that there's a closed unlined MSW landfill and then adjacent to that there's another closed unlined MSW landfill. In other words, there's actual garbage being put into those cells at a time where you could have an unlined facility.
And so if the Court were to explore the question that was asked, what would have to happen given that this is such a small site -- there's only 312 acres -- is that there's not enough room on the site to construct a new C&D cell.
To the left of that same map, you will see an area that the County is using for composting and then to the left of that portion you'll see an area that the County is using for MSW and it

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used for an ash monofill. At the time the County was incinerating its garbage and taking the ash and disposing it at the facility.
The problem the County has with the site is each area is proposed for future expansion of the landfill as a whole, principally to bury garbage. And so as you begin to shift to accommodate the C&D, you'll have to then, therefore, make room for areas that were planned for MSW. And so, yes, it ultimately will frustrate the ability to handle the County's garbage, which is the only place in Charleston County to bury Charleston County's garbage.
And so the importance of this whole case has always been about a landfill in Charleston County that would benefit -- that benefits all of its citizens. Not just the adjacent neighbors, but all of Charleston County.
The challenge has always been in this case is that the County had a landfill that for some reason everyone came to. Usually, it's "Not in my backyard; don't put your landfill next to me." In this instance, it's reversed. We've got the landfill that everybody wants to come

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to. And now that they've come to the landfill, they're not happy with their neighbor anymore. The problem is this neighbor was here first. And so what I wanted to spend just a few minutes talking about is a couple of the -- what we've all been talking about today is the things that we believe the Court is in the position to decide. We've spent a lot of time talking about what we perceive the facts to be, but I don't see this as a fact case. I see this as a law case. I see it as the Court interpreting three or four separate provisions that only you can do.

The first is -- and we spent a lot of time on it and there's not a lot of guidance for you from a statutory perspective -- and that is this whole 1,000-foot rule. Well, DHEC has told you how it interprets it and the Petitioners in this case would like you to interpret it differently. They want you to interpret it as "Any time you get a zoning change, I've met the standard," and, therefore, DHEC is in violation of the standard at the mere change of zoning.

Well, it would have been very easy for our

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General Assembly to say, "If you get a zoning change to residential use, regardless of the type, doesn't matter what the residential use is, you meet the standard." Would have been very simple. I don't believe the Legislature thought that it was going to be that simple because properties are zoned all the time and those change -- those zonings change in intensity.

The problem here is without anything on the ground, without a lot platted and without an individual proposing to go build a house that has a building permit, it is very speculative to say you should not allow a landfill to coexist next to a residential property. The problem, Your Honor, is they do exist. You heard testimony today that people live next to landfills. The developer in this case proposes to sell lots next to a landfill. So the concept of that being inconsistent or incompatible in and of itself is in opposite of each other, because if they are successful, there will be a house next to the property line of the Charleston County landfill and that house, whether the height is 74 feet or 168

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feet, will be 100 feet from the boundary of the fill area, if they're successful. That's just a reality. There's no other way to get at it. The question is whether that house that's 100 feet from the boundary of the fill area will look up 168 feet or 74 feet. But it will be 100 feet away. Can't get around it. So this concept of the 1,000-foot rule is real simple. They had full knowledge that they were going to be within 1,000 feet of that boundary of that fill area. There's -- there's no question of that. But they're asking you to interpret it differently for expansion purposes.

The second thing -- and I invite the Court to spend some time for this and I can't recall -- Bernie, you've got the exhibit list -- what it's marked as. But this is the -- the article in the Charleston County zoning ordinance -- and I believe it's Exhibit Number -- Number Ten and it's Chapter nine. And I'd ask you to spend some time with the first section, which is 9.5.1. And, interestingly, it's titled "Applicability," because you would think if it's not even applicable, there's not much

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reason to turn to the other pages that you heard testimony on.

And that's -- again, this is only something the Court can do; a witness can't testify to it. But midway through that paragraph it talks about "when modifications or additions are being made to an existing nonresidential building or site" -- we believe this is a nonresidential site -- "the standards of this article shall apply to those portions of the subject parcel that are directly affected by the proposed improvements."

Now, if you just stop there, it would appear that this is a mandatory provision, assuming all other things apply. But unfortunately -- or fortunately, depending on which side you're on -- Charleston County Council added four more words -- five more words, "as determined by the planning director."

So without a determination by the planning director as to its applicability, it doesn't apply. The problem is the words are plain on its face. There has been no determination by the planing director that these standards that are found here should apply to the Charleston

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County landfill.
There's no question in the testimony that there is 100 feet around the perimeter of this landfill. The argument that's being made is that somehow DHEC erred in its consistency determination because there weren't enough trees planted. And because there's not enough trees planted before the permit was issued, somehow that's in violation of the County ordinance and it is inconsistent with the County zoning ordinance. That's a lot of stretching and reaching when there hasn't been a determination by the planning director. Well, now, the Court can make that determination, just like DHEC could have. Court could say, "You know what, since there's a 100-foot buffer, we think you should put some trees in there." There's probably reasons why you don't have trees in that buffer, but that's too easy. The point here is in interpreting this provision, there's a simple qualifier and it's discretionary. And that was asked of a witness. Didn't know why it wasn't asked of the planning director. I invite you to just spend time with that first paragraph, because

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that is extremely telling because it's not a mandatory provision.
Unlike the previous case where Judge Anderson said as a prerequisite to getting an approved amendment to the zoning -- to the landfill, you must have a special exception. You can't even get to step B without accomplishing step A. Well, unfortunately in this case you don't have that same prerequisite. You don't have that same prefatory language that says you must do this before a determination can be made. That's the difference in this case with the smoking gun that they are purporting to have -- hand to you in this case. There isn't any prefatory language that requires a prerequisite first.
At it relates to this ordinance that was adopted by Charleston County in 1974, I was not the County Attorney in 1994, don't have any clue as to what they were doing then. But I will tell you this, that there are case law -- and one of the cases, in particular, is the Southeast Resource Recovery case, where I think the Supreme Court, in analyzing what DHEC did in that case, as it relates to a requested

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permit of a landfill, used some interesting language in the case.
The Court said -- and it's referring to the language in the case -- that "this broad general statement of goals cannot serve as a basis for concluding the proposed facility is inconsistent with Newberry County's plan."
I only draw your attention to that language because as you review this particular exhibit and you look at the two sentences, first sentence, "conform with the surrounding environment; second sentence, "conform with future development in the area." You almost have to scratch your head for a second and say, "What is the standard by which I am measuring if DHEC did its job or not?"
Now, I submit to you, as I think you've heard testimony, that the very preamble to the Solid Waste Policy and Management Act embodies these concepts. This is a part of what DHEC does every day. I think you heard from the stand Mr. Coleman said, "Hey, I have to look at surrounding areas because I have to determine the impact of the landfill on those." And the examples he kept giving you were water quality.

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There's no way in the world DHEC would approve siting a landfill if it believed an adjacent parcel was going to be affected from a water quality perspective. Well, that has to do with the environment.
The very statutes say are the 44-96-20(B), which deals with its purpose, the purpose of this article. And I draw your attention to subpart (5), it says to "ensure that solid waste is transported, stored, treated, processed, and disposed of in a manner adequate to protect human health, safety, welfare and the environment."
Well, I can't imagine any construction of that statute would only focus you in on one point in time and not look at the impact in the future, as if DHEC would take a blind eye to what could happen in the future. That can't be the construction of that statutory provision. Nor would DHEC in the process of reviewing an application have a blind eye to what could potentially happen in the future with future development.
The only other thing, Your Honor, I wanted to point out to you is that this isn't the first

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time the parties have debated these issues and unfortunately doesn't appear that it's going to be the last, because I recognize this is an important issue to the Petitioner because it's tied to dollars. It's not tied to the ability to depose of solid waste in Charleston County effectively; it's tied to a business decision. And the County respects the business decision. The problem is the County can't solve the economic issues of the Petitioner.

And this case isn't about whether DHEC met the standards under the regulations and the statute, period. And those regulations and statutes don't contemplate whether it's a good business deal to the neighbor. If that were the standard by which DHEC was supposed to apply, then we should have heard testimony about that and we should be pointing to some regulation or statute that calls this Court to measure whether or not this is a successful business venture and, if it's not, therefore, the permit should be denied. That's just not a statute before you.

Your Honor, we think DHEC complied with its regulatory requirements and we think you should

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affirm DHEC's decision.

THE COURT: Thank you.

Okay. Reply?

REPLY BY MR. WALKER:

MR. WALKER: Certainly there are dollars and cents implications, but the question is one of consistency and conformance with the land use of Grand Bees land, regardless of those economic consequences. And in this case the nonconformance isn't simply from the presence of a landfill. No, that's not what's causing the nonconformance. The nonconformance with future use is the gross expansion of the landfill.

The County has said, "Well, we moved to the landfill." We moved to a landfill that was going to be no more than 70-something feet, 74 feet. Now it's going up almost 100 feet higher. That's significant. That's what causes the nonconformity, because the life of the landfill at that high elevation is going to be at least ten years, according to the County's application. All that noise, all that debris, everything else, which, per se, is incompatible with residential use.

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Turning to the questions that DHEC raised, there were two legal questions, one about Kim Murphy vs. DHEC. We've taken a look at that case and what the Supreme Court said in that case was that the application that the enforcement officer used was reasonable. We're saying that the interpretation that's adopted -- or not even adopted, but applied, Mr. Coleman's interpretation is not reasonable. And we would also point out that the Supreme Court authority generally is to the effect that the deference is given to an interpretation by the board, not to the permitting official. If deference were given to the permitting official, then Your Honor would be stripped of her authority to decide all facts de novo, because Your Honor would simply have to rubber stamp the permitting official's decision. Certainly that's not the case. You're entitled to -- to look at the statute and if there's been no precedential determination by the board, it's not binding.

We are not talking about hypothetical future development. They keep coming back to it's speculative. Grand Bees had an approved site

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plan for 110 lots within 1,000 feet of the toe of the C&D mound. That's not speculative. They can only do it one step at a time.

Mr. Dawson, on behalf of the County, has talked about the vegetative buffer requirement. Mr. Coleman acknowledged that the ordinance required a vegetative buffer. He acknowledged that the vegetative buffer was not part of the plan. As the Southeast Recovery case -- Resource case points out, that determination is made by DHEC. It's not made by the County. So it's DHEC, not the County. The County doesn't decide on consistency.

And with respect -- while we're onto Southeast Resource Recovery, in that case the standard that the Court found was -- was too vague and general, was the standard that said the goal of this solid waste policy is "to protect, preserve and enhance the environmental quality of Newberry County."

In this case the ordinance that we're pointing to dealing with solid waste is very specific. It states that the site location or increase needs to conform with the future development of the area. That is not vague. That's very

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specific.
All they have to do is to go to the City -- which they didn't bother to do -- and see what exactly had been done with respect to the future development of the area and they would have found the approved site plan. They didn't do it.
So we do not think -- and we don't think the Court would find that Southeast Resource applies in the sense that it would negate the County's own ordinance. And here's the County trying to run from its own ordinance because it didn't abide by it.
There are other aspects of this ordinance that were not shown to be complied with, including getting a certification or approval from the Charleston County Health Department. If this ordinance is no longer valid, it needs to repeal it. We've got a statement saying it's valid and it's in effect and they don't contend that it's not in effect. They just don't want to have to abide by it.
In conclusion, this proposed gargantuan expansion of the landfill is not in conformity with the future development next door and

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that's a requirement under the ordinance we just talked about. A landscape buffer is required and they didn't do it.
The County has said we had the obligation to go to the County planning director and find out whether it would be required. It's not our obligation. We're not required to make a consistency determination. It's DHEC that has to find that the plan is consistent with all zoning, and it isn't.
And, finally, as we argued in our opening closing argument, the application -- or, rather, the interpretation given to "residence" by Mr. Coleman is unfair, unrealistic and would result in gross injustice in this case. Thank you.
THE COURT: All right. Thank you. And what I'm going to do is, I'm going to take this case under advisement for a couple of days and I'm going to -- and I'll email the parties and let you know if I'm requiring you to submit any post-trial briefs or similar thing or proposed orders.
But let me take a look at the exhibits, review the regs a little more, and then email the

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parties with any instructions. Okay?
MR. WALKER: One last housekeeping method. We're going to submit identical copies of the blown-up exhibits, but they're not going to be on poster boards, to be substituted for the ones that are on poster board, so that the Court will not have all those poster boards.
THE COURT: Okay. Thank you.
(The hearing concluded at 5:41 p.m.)

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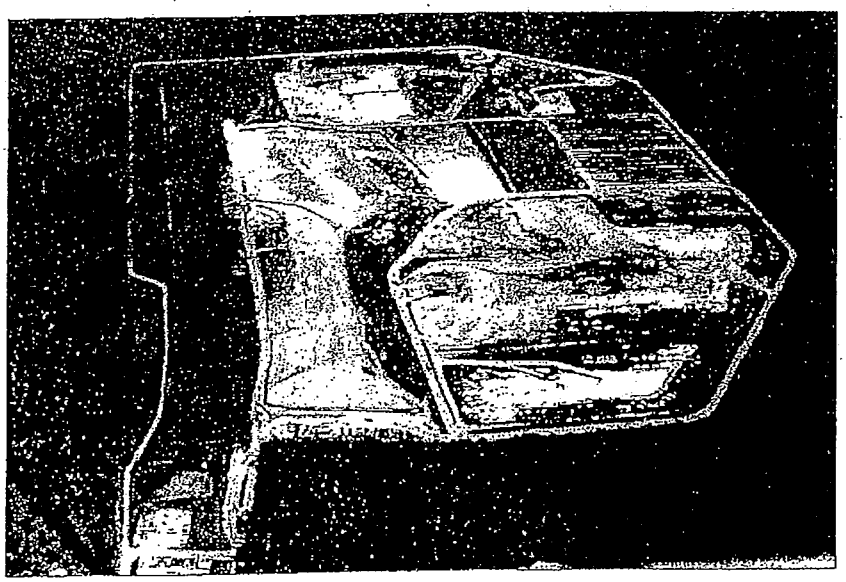
Construction, Demolition and Land-Clearing Debris Landfill

Permit Modification

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for the

Bees Ferry Landfill



July 2007

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Issued for Approval

Department of Solid Waste/Recycling
Charleston County
South Carolina

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CONSTRUCTION, DEMOLITION AND LAND-CLEARING DEBRIS LANDFILL

PERMIT MODIFICATION

BEES FERRY LANDFILL

CHARLESTON COUNTY, SOUTH CAROLINA

GUIDE TO REVISED DOCUMENTS:

Binder	Replace cover and spine
Report	Replace title page and table of contents in its entirety
Section A	Permit Application - replace in its entirety
Section B	Site Plan – replace in its entirety Engineering Report – replace in its entirety Engineering Drawings – replace selected drawings as listed below Permit Drawing Cover Sheet Drawing B-02, Historical High Groundwater Drawing C-03, Proposed Final Grades Drawing C-04, Cross Sections (1 of 2) Drawing C-05, Cross Sections (2 of 2) Drawing C-06, Fill Sequence Drawing C-09, Details (2 of 2)
Appendices	No Change

Full Size Engineering Drawings – replace selected drawings as listed above

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Ms. Joan Litton
Manager
Solid Waste Permitting Section
Division of Mining and Solid Waste Management
South Carolina Department of
Health and Environmental Control
Bureau of Land & Waste Management
2600 Bull Street
Columbia, SC 29201-1708

Re: Bees Ferry C&D Landfill
Charleston County, SC
Permit Modification
SCDHEC Landfill Permit # 101001-1201
HDR Project No. 11613-51678-018

Dear Ms. Litton:

On behalf of Charleston County, HDR Engineering, Inc. of the Carolinas (HDR) has prepared the enclosed Permit Modification for the Bees Ferry Construction and Demolition landfill. This permit modification expands the footprint of the existing C&D Landfill by 5.5 acres and increases the height to 168 feet MSL.

Should you have any questions, please feel free to contact me at (704) 338-6700.

Respectfully Submitted,

Philip A. Westmoreland

Philip A. Westmoreland, PE,
Project Engineer

PAW/apb

Enclosures (3)

cc: Robert Lawing, PE, Charleston County, (w/2 copies of enclosure)
Joe Readling, PE, HDR (w/o enclosure)

C&D PERMIT 0003

HDR Engineering, Inc. of the Carolinas
128 S Tryon Street
Suite 1400
Charlotte, NC 28202-5004
Phone: (704) 338-6700
Fax: (704) 338-6750
www.hdrinc.com

CONSTRUCTION, DEMOLITION AND LAND-CLEARING DEBRIS LANDFILL

PERMIT MODIFICATION

BEES FERRY LANDFILL

CHARLESTON COUNTY, SOUTH CAROLINA

Prepared for:

CHARLESTON COUNTY
SOUTH CAROLINA

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APPROVED BY
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Bureau of Land & Waste Management
BY _____
TITLE Assistant Director
DATE ISSUED 1-17-2008
PERMIT NO. 101001-1201

Prepared by:

HDR

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street, Suite 1400
Charlotte, NC 28202-5001

HDR Project No. 11613-51678-018

SOUTH CAROLINA HDR ENGINEERING, INC. OF THE CAROLINAS No. C0018 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 24994 PHILIP A. WESTMORELAND 11-6-07

July 2007
Revised November 2007

C&D PERMIT 0004

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A CORRESPONDENCE

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Letter of Consistency, April 10, 2007
Preliminary Consistency Review, May 31, 2007
Demonstration of Need, May 16, 2007
Demonstration of Need Approval, May 25, 2007

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VOLUME & LIFESPAN ESTIMATE

SLOPE STABILITY EVALUATION

C SCDHEC R.61-107.11 APPENDIX I & II

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A. PERMIT APPLICATION

1. INTRODUCTION

On behalf of Charleston County (County) South Carolina, HDR Engineering, Inc. of the Carolinas (HDR), is submitting this permit modification for vertical and lateral expansion of the existing Construction, Demolition and Land-Clearing Debris (C&D) area located within the Bees Ferry Landfill (Landfill) in Charleston, South Carolina. This modification will increase the footprint by 5.5 acres and increase the height to 168 feet MSL. The proposed expansion is contained entirely with the existing permitted boundaries and buffer zones for the facility. The proposed C&D expansion is located in an area of the site that was previously permitted as a municipal solid waste (MSW) disposal area associated with the closed unlined Phase 2 MSW landfill. However, according to Charleston County, MSW has not been disposed in the area designated for the proposed C&D expansion.

This permit modification has been organized to match the structure of Part IV B., Permit Application Requirements, of SCDHEC R.61–107.11 as outlined below. Refer to the Table of Contents for the location of specific information requested in the Construction Plans and Specifications section of the regulation.

Part IV B. Permit Application Requirements

A. Permit Application

1. Introduction
2. Background
3. Application Form

B. Construction Plans and Specifications

1. Site Plan
2. Engineering Report
3. Construction Plans (Engineering Drawings)

C. OCRM Communication

The Bees Ferry Landfill is located in the coastal zone as defined in accordance with the Office of Ocean and Coastal Resource Management's (OCRM) Coastal Zone Management Act of 1972. The OCRM will provide a letter to SCDHEC stating that the C&D Landfill is consistent with the SC Coastal Zone Management Plan upon notification of this application.

D. Financial Assurance

As a local government, the Charleston County is exempt from this requirement.

E. Disclosure Statement

As a local government, the Charleston County is exempt from this requirement.

Information requested by additional sections of R.61-107.11 Part IV is addressed as follows:

Regulatory Section	Location in Engineering Report
Part IV C. Design Criteria	Various sections. See also Engineering Drawings.
Part IV D. Acceptability of Waste	Section 2g, Waste Inspection & Measurement
Part IV E. Operation Criteria	Section 2f, General Operating Plan
Part IV F. Monitoring & Reporting	Section 2f, General Operating Plan
Part IV G. Closure	Section 2r, General Closure Plan

C&D PERMIT 0008

2. BACKGROUND

Charleston County (County) owns and operates the Bees Ferry Road Landfill located on Bees Ferry Road, west of downtown Charleston (see Figure 1-1, Site Location Map in Section B). The landfill is permitted to receive municipal solid waste (MSW); construction, demolition and land-clearing debris (C&D); and yard waste. The facility is currently operating the Construction and Demolition Landfill under Permit 101001-1201, effective October 17, 1997. A copy of the permit is included in Appendix A, Correspondence.

This permit modification document has been prepared in general accordance with the requirements of South Carolina Department of Health and Environmental Control (SCDHEC) Regulation R.61–107.11 Part IV, Long-term Construction, Demolition, and Land-Clearing Debris Landfills promulgated under the South Carolina Solid Waste Policy and Management Act of 1991. A completed application form for construction and operation of the expanded facility is included.

Related documents that have been previously submitted to SCDHEC include:

- "Permit Application, Construction, Demolition and Land Clearing Debris Landfill" prepared by B.P. Barber and Associates, Inc. dated March 1997.
- "Preliminary Hydrogeologic Characterization Report, Proposed Bees Ferry Landfill Expansion" prepared by HDR Engineering, Inc. of the Carolinas (HDR), dated November 2002.
- "Site Hydrogeologic Characterization Workplan, Proposed Bees Ferry Landfill Expansion" prepared by HDR, dated February 2003.
- "Site Hydrogeologic Characterization Report (SHCR), Proposed Bees Ferry Landfill Expansion" prepared by HDR, dated June 2003.
- "Permit Application for the Bees Ferry Lined MSW Unit" prepared by HDR, dated March 2004, Revised April 2005.

C&D PERMIT 0009

D H E C
PROMOTE PROTECT PROSPER

Application for Permit to Construct a Solid Waste Management System
Bureau of Land and Waste Management

Submit to: Division of Mining and Solid Waste Permitting, Bureau of Land and Waste Management
SC Department of Health and Environmental Control, 2600 Bull Street, Columbia, SC 29201-1708
(Please Print or Type)

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I. Name of project: Bees Ferry Construction and Demolition Landfill

II. Physical location (Directions to project - use street names, county road numbers, etc.):
1344 Bees Ferry Road near Savannah Hwy (US 17) County: Charleston

Latitude and longitude (nearest 15 seconds) or UTM coordinates:
Latitude: N 32° 49' 15" Longitude: W 80° 6' 22"

III. In accordance with Title 44, Chapter 96 of the Code of Laws of South Carolina, 1976, as amended, I hereby make application, on behalf of the party(ies) whose name(s) appears below, for a permit to construct and operate the following type of solid waste management project (describe):
Construction, Demolition and Land-Clearing and Inert Debris Landfill with the associated ancillary facilities (ex. scales, scalehouse, equipment maintenance, etc.)

IV. Facility name, mailing address: Bees Ferry Landfill
1344 Bees Ferry Road, Charleston, SC 29414 Telephone number: (843) 571-0929

V. Operator's name, mailing address (if different from name of facility owner):
Telephone number:

VI. Landowner's name, mailing address (if different from name of facility or operator):
Telephone number:

VII. I have placed my signature and seal upon the documents submitted with this application signifying that I accept responsibility for the information and/or design contained therein. Additional submittals where required will also bear my signature and seal, signifying that I accept responsibility for the information and/or design contained therein.

Engineer's name (print): Philip Alan Westmoreland Signature:

S.C. Registration No: 24934

SOUTH CAROLINA
NO. 24934
REGISTERED
PROFESSIONAL ENGINEER
P. A. WESTMORELAND
Registered Professional Engineer

VIII. I have read this application and all attached documents. I agree to the requirements and conditions that are contained in it. Also, I agree to the admission of properly authorized persons at all reasonable hours for the purpose of sampling and inspection.

Name of Facility Representative (print): Robert Lawing Signature:

Facility Representative's title: Interim Director, Solid Waste Date: 7-3-07

Name of Operator Representative (print): Signature:
(If different from facility representative)

Operator Representative's title: Date:

Name of Landowner (print): Signature:
(if different from facility or operator representative)

Date:

DHEC 1932 (07/1997) C&D PERMIT 0010

SITE PLAN

C&D PERMIT 0011

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B. CONSTRUCTION PLANS AND SPECIFICATIONS

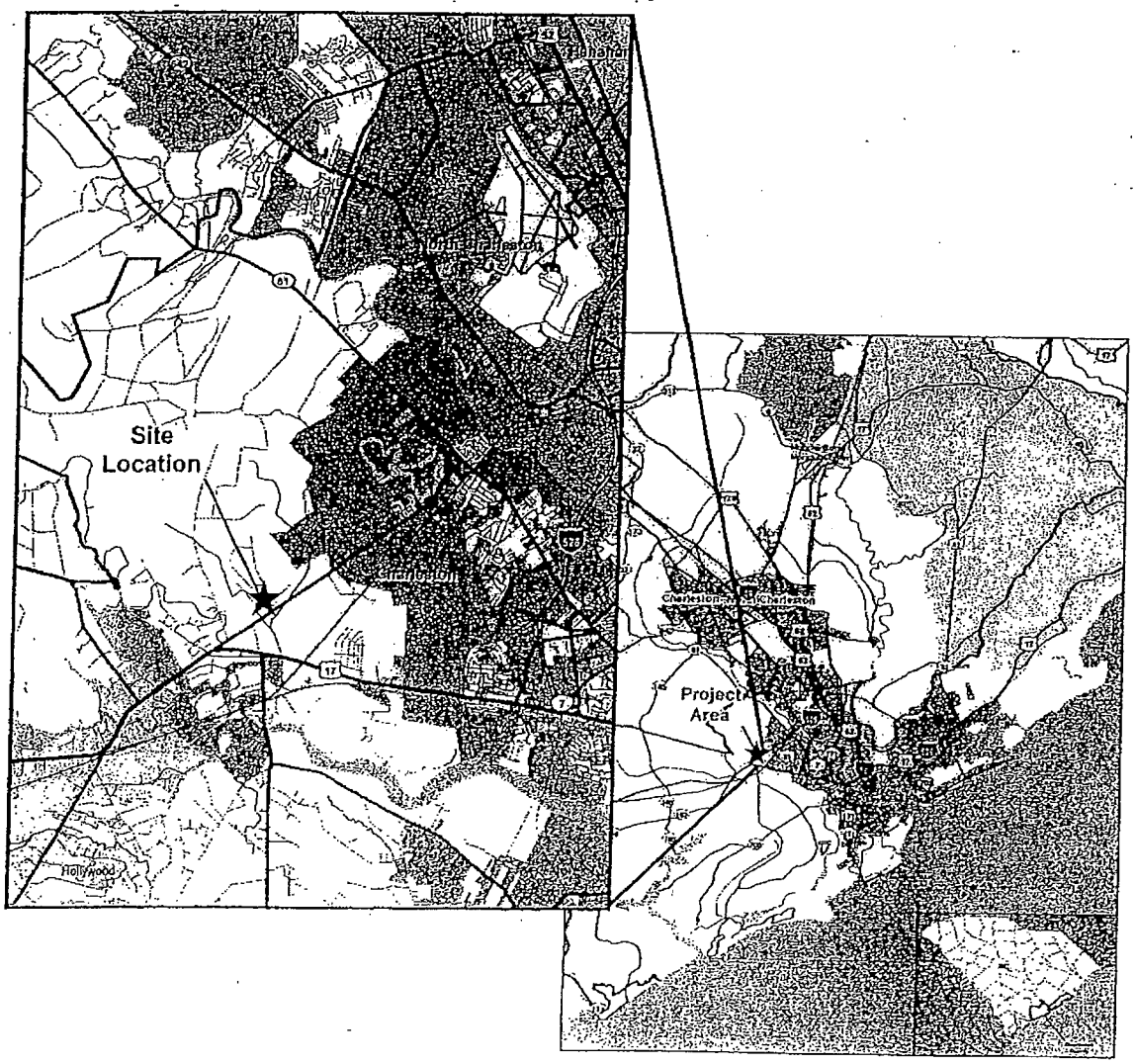
Please refer to the Engineering Drawings for the C&D expansion included in this application when reviewing the information provided in the Site Plan and Engineering Report.

1. SITE PLAN

a) Property Boundaries

As shown in Figure 1, the site is located near Savannah Highway (U.S.17). (N32°49'15", W80°6'22"). Details are shown on Drawing G-04, Vicinity Map. The proposed expansion does not impact the existing property boundaries.

Figure 1 Site Location Map



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b) **Land Use and Zoning**

Drawing G-04, originally submitted with the MSW permit, depicts the land use and zoning within 1 mile of the site. No significant changes have occurred within that radius since that submittal.

The proposed C&D expansion is located completely within the already permitted unlined MSW Landfill boundaries and is not within one hundred (100) feet of existing water supply wells. Drawing G-04, Vicinity Map, shows the water supply wells surrounding the site.

Population centers were determined based on the United States Census conducted in 2000. The Census divided Charleston County into nine regions called Census County Divisions (CCD). The landfill is located in the Bear Swamp CCD, which had a population of 12,000 people. The Charleston CCD is located east of the landfill with a population of 170,000 people. The John's Island CCD is south of the landfill with 13,000 people and, to the west, is the Ravenel CCD with 13,000 people. The Summerville CCD is located north of the landfill in Dorchester County with 78,000 people. The facility is not located within one hundred (100) feet of any property line or one thousand (1000) feet of any residence, school, day-care center, hospital or publicly owned recreation area.

Access to Bees Ferry Landfill is from Bees Ferry Road (S.C. Highway 57), which generally runs east to west. Bees Ferry Road is a two-lane highway, and the majority of the traffic to and from the landfill is from the east. Access to Bees Ferry Road from this direction is from Glenn McConnell Parkway, which is a four-lane divided highway. This intersection is approximately 1.8 miles from the landfill entrance. Traffic from the west accesses Bees Ferry Road from US Highway 17, which is a four-lane highway. This intersection is approximately 1 mile from the landfill entrance.

The facility is owned by the County and is zoned for industrial use which, according to the Charleston County Planning Department, includes landfills. Correspondence from the Charleston County Planning Department regarding zoning of the landfill is included in the Appendix A, Correspondence. A copy of the property deed is also provided in Appendix A.

c) **Surface Water**

The site topography is generally flat in the unfilled areas and, based on topographic survey data, these elevations range from approximately 8 to 16 feet above MSL. The elevations of the closed unlined MSW landfill unit mound up to approximately 85 feet above MSL, and the elevations of the active lined MSW unit will mound up to approximately 170 feet above MSL. The stormwater run-off from the other interior flat and mounded areas of the landfill flows to the interior drainage control ditches. These interior ditches flow to a perimeter ditch that flows to two on-site sediment basins, Sediment Basins #2 and #3. Stormwater from a portion of the closed unlined MSW landfill unit flows to Sediment Basin #1. The sediment basins then drain southwest to tidally-influenced Bear Swamp adjacent to the Stono River, which connects to the North Edisto and Ashley Rivers. The waste disposal boundary is not located within two hundred (200) feet of any surface water body which holds visible water for greater than six (6) consecutive months (excluding drainage control ditches, sediment basins and other operational features on-site).

d) **Site Conditions**

The location of the proposed C&D expansion unit is between the closed Phase 2 unlined MSW unit and the active C&D disposal area, an area that was previously permitted as an MSW disposal area associated with the closed unlined MSW landfill. According to Charleston County, MSW has not been disposed in this area. This expansion area increases the permitted area towards the center of the facility.

Proposed site development activities for the C&D unit include grading and construction of landfill areas, roadways, storm water conveyance, and environmental control systems. Detailed locations of all site structures, buildings, fences, gates, entrances and exits, parking areas, and on-site roadways are provided on the Engineering Drawings.

All operational areas will be accessible by internal roads. Internal roads used by disposal vehicles will be maintained to be passable in all weather by paving with either gravel or asphalt. Access roads will be provided to reach monitoring wells and other locations requiring periodic visitation.

The foundation of the proposed C&D expansion unit is anticipated to consist of naturally occurring soils based on the geologic exploration of the subsurface (Site Hydrogeological Characterization Report, HDR, 2003). A minimum floor slope of one percent will be maintained to promote drainage. Final use of the site is undetermined at this time.

ENGINEERING REPORT

C&D PERMIT 0015

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2. ENGINEERING REPORT

a) USGS Quadrant Map

Figure 2 provides the portion of the John's Island USGS Quad sheet that pertains to this project. In addition, a detailed topographic map of the site, Drawing C-01, Existing Conditions, has been included in the Engineering Drawings.

b) Cover Material

A significant volume of soil will be required to operate and close the C&D unit over the life of the facility, as shown in Table 1. Additional soil needed for operation and closure is expected to come from an off-site source.

TABLE 1
SOIL BALANCE

Cell	Waste Type	Structural Fill (CY)	Material Cover (CY)	Total Cover (CY)	Total Borrow Soil Required (CY)
2	C&D	16,000	356,000	162,000	534,000

* Assumes a 10:1 waste to cover ratio for the remaining capacity.
Notes: All quantities are rounded up to the nearest thousand.
No excavation is anticipated.

In order to provide for the cover requirements, off-site borrow areas will be excavated to keep pace with the demand for soil. During normal operations, material should be hauled to the site and stockpiled and then placed over the waste.

The final cover system will consist of at least 2 feet of soil suitable for sustaining ground cover.

c) Cover Frequency

The waste working face in the C&D unit will be covered with six inches of soil material every 30 days, or more frequently if conditions require.

The working face will be kept to as small an area and slope as practical for safe operation, and the slope will not exceed 33 percent.

d) Disposal Area Depth

i) Depth of Waste

The maximum depth of the waste will be approximately 158 feet.

ii) Slopes

The final grades for waste placement are shown on the Engineering Drawings. These contours have been established to reflect all C&D expected to be received and the final cover system to be installed. The final grades shown on the drawings represent the top of the final cover system (including the 2 feet of final cover soil).

The Landfill is designed to have initial top slopes of 8 percent and side slopes with a ratio of 3H:1V. Final contours have been established to allow the Landfill's surface water to drain off the final cover while limiting erosion potential and maintaining post-settlement slopes of 4 percent. Surface water runoff from the top slopes is intercepted by a diversion berm that separates the top slopes from the side slopes and is carried off of the cover via slope drain

pipes. The side slopes incorporate a system of terraces (benches) to limit surface water flow length. The vertical spacing of the side-slope swales is approximately 40 feet. The side-slope swales will drain into the down chutes that, in turn, drain to the perimeter drainage channel. The surface waters will be conveyed by the perimeter drainage channel to a sedimentation basin located adjacent to the Landfill.

e) Final Contours

The final grading for closure is shown on Drawing C-03, Proposed Final Grades. The proposed final contours reflect the total C&D waste expected to be received as well as the final cover system of at least 2 feet.

i) Stability

SCDHEC Regulation R. 61-107.11 Part IV does not require a slope stability study. However, there is concern of the stability of the slope on the side adjacent to the Borrow Area/Sediment Basin #3 due to the depth of excavation in that area. Therefore, a stability evaluation was performed by Richardson, Smith, Gardner & Associates (RSGA) for this side of the C&D Landfill.

The computer program PCStabl6H was used to evaluate the slope stability of 3H:1V final grades. The cross section used for the evaluation was a section taken through the maximum height of the waste mass and the existing borrow area. This critical section was selected due to the proximity of the existing borrow area to the toe of waste.

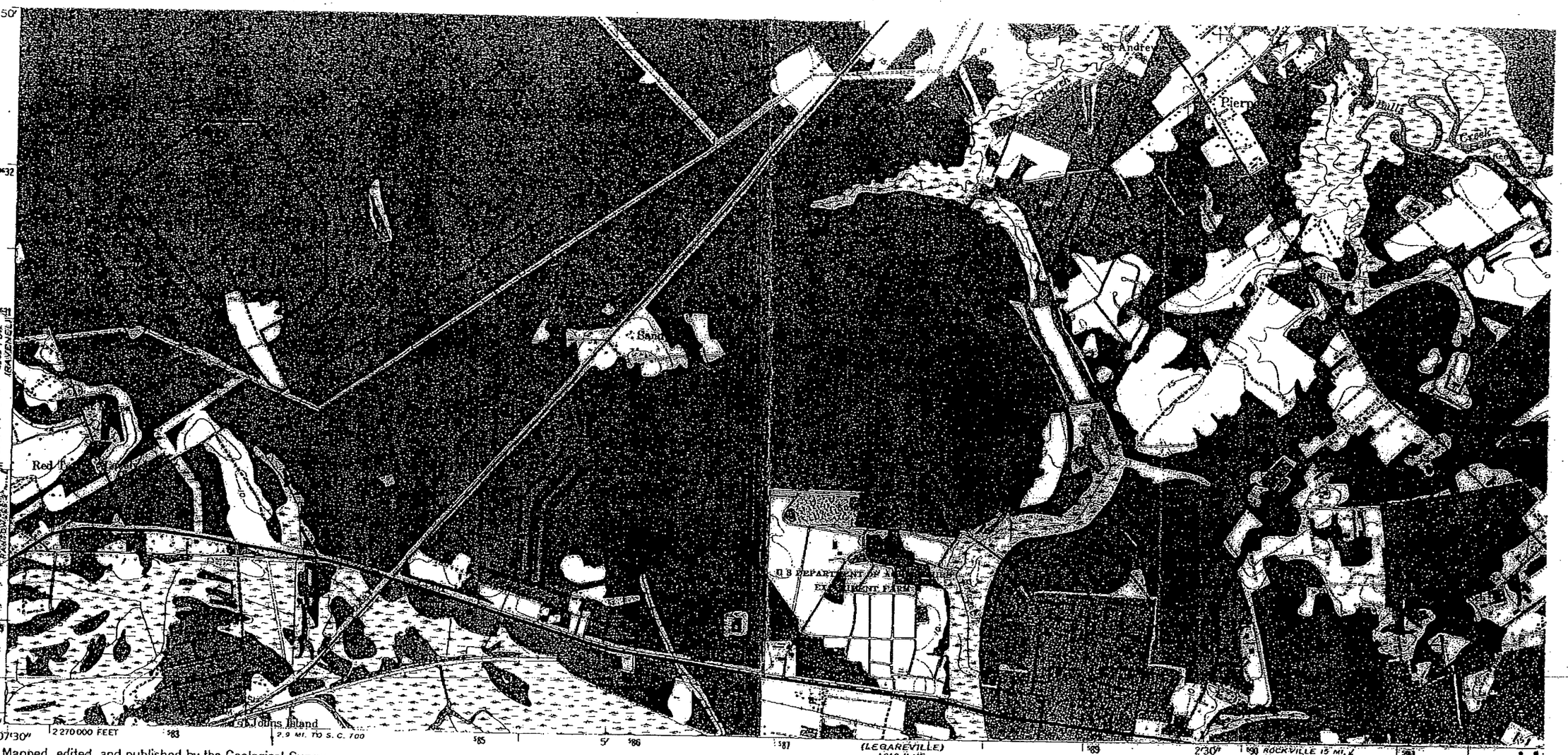
The material properties of the cross-section components that were keyed into the computer program consisted of MSW and subgrade material. Typical values assumed for the characteristics of subgrade material and refuse were based on site-specific testing, published literature, and previous analyses. As part of the MSW Permit approved October 20, 2005, Piezocone Penetration Tests (CPTu) and Flat Blade Dilatometer Tests (DMT) were performed at the site. Seismic shear wave velocity data was also collected from the deepest CPTu test. The results of these tests were used as the basis for the seismic analysis.

The results of the stability evaluation suggest that a stabilization method should be implemented around the toe of the waste for zones of soft clays or liquefiable silty sands. Since the side of the C&D landfill along the Borrow Area/Sediment Basin #2 is the most critical, this side will be stabilized prior to expanding the C&D landfill. The complete analysis performed by RSGA is included in Appendix B.

ii) Stabilization Method

The method that will be implemented to stabilize this area will be to perform excavations on a 50′ by 50′ grid beginning from the toe of waste and extending outward up to 150′. The outer limits of the stabilization effort will be defined by the location of the Cooper Marl formation, which is a stable layer. If zones of soft clays or liquefiable silty sands are found at the excavations, then additional excavations between each grid point should be performed to determine the extent of the zone. Once the extent of the soft clay or liquefiable silty sand is determined, one of the following methods will be implemented to address that immediate area:

- Remove all of the unsuitable material and backfill with suitable material.
- Remove a portion of the unsuitable soil and mix in suitable soils.
- Remove a portion of the unsuitable soil, install a geogrid, and backfill with suitable soils.
- Any combination of these options.



Mapped, edited, and published by the Geological Survey

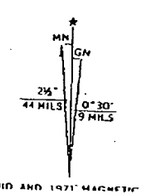
Control by USGS, USC&GS, USCE, and South Carolina Geodetic Survey

Culture and drainage in part compiled from aerial photographs taken 1957. Topography by planetable surveys 1958

Hydrography compiled from USC&GS charts 792 (1957) and 1239 (1958)

Polyconic projection. 1927 North American datum
10,000-foot grid based on South Carolina coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

Red tint indicates areas in which only landmark buildings are shown



GRID AND 1971 MAGNETIC NORTH

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5.2 FEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt - - - - - -
U.S. Route State Route
Interstate Route

JOHNS ISLAND, S. C.

N3245—W8000/7.5

1958
PHOTOREVISED 1971
AMS 4949 I SE—SERIES V846

C&D PERMIT 0018

Revisions shown in purple compiled from aerial photographs taken 1971. This information not field checked

FIGURE 2

f) General Operating Plan

i) Life Expectancy

Based on the September 2006 annual survey, along with current and projected waste disposal rates for the County, the expanded C&D unit will have a life expectancy of approximately 10 years.

ii) Capacity

The expanded C&D unit will have a design capacity of approximately 5.4 million cubic yards for construction, demolition, and land-clearing debris.

iii) Waste Rate

The maximum available annual disposal rate under the demonstration of need is 200,000 tons per year. Approval for this rate was granted on May 25, 2007. A copy of the approval letter is included in Appendix A, Correspondence. An annual report shall be submitted to SCDHEC providing the actual weight or volume of waste received per month, a description of the capacity of the landfill used during the previous year, and the remaining permitted capacity.

iv) Operating Procedures

Waste transportation vehicles will arrive at the working face at random intervals creating the potential for multiple vehicles to be unloading waste at the same time while additional vehicles are waiting. Operations at the working face will be conducted in a manner which will encourage the efficient movement of transportation vehicles to and from the working face in order to expedite the unloading of waste.

An area large enough for vehicles to arrive and turn around safely will be provided adjacent to the unloading area. The vehicles will back to a vacant area near the working face to unload. Upon completion of the unloading operation, the transportation vehicles will leave the working face area. Landfill personnel will direct traffic as necessary to expedite safe movement of vehicles.

Unloading of solid waste intended for disposal in the landfill shall be restricted to the working face. Waste material shall not be placed on or within fifty (50) feet of underground or above ground utility equipment or structures without the written approval of the impacted utility.

Fill progression will be conducted following the phased fill plan shown on Drawing C-06. The waste will be placed to promote positive drainage and avoid ponding of storm water on the fill. Drawing C-06 indicates the progression of fill starting from the conditions shown in the September 9, 2006 survey until achieving the final grades as shown on Drawing C-03.

In order to control litter and windblown debris, the working face will be kept as small as possible and waste compacted soon after it is unloaded. Portable litter fences may be utilized downwind of, and in close proximity to, the working areas to catch litter. The area around the working face and the property will routinely be checked and litter removed on a regular basis.

All on-site equipment will be equipped with mufflers or similar noise-dampening devices.

Records for facility inspections, tonnage, location of the active working face, waste generators, and employee training will be kept at the facility and made available to the SCDHEC upon request within a reasonable period of time.

In the event that non-friable asbestos material, as specified in Appendix I of R.61-107.11, is brought and accepted for disposal to the C&D Landfill the asbestos containing material will be placed and covered immediately with 6 inches of soil.

Friable asbestos is prohibited from this landfill as specified in Appendix II of R.61-107.11.

v) Access & Traffic Routing

An entrance sign is posted at the Landfill stating the facility name, permit number, and operating hours. Additional signs are posted indicating the allowable speed limit and location of the disposal area. Proper signage directing and informing facility users is located in high visibility areas, including signs identifying wastes that are unacceptable for disposal.

Entry to the site is limited to Landfill personnel, approved waste haulers, visitors, and other properly identified persons whose entry is authorized by the site management. The County reserves the right to restrict access to the site. Visitors are allowed near the active areas only when accompanied by a site representative.

Portable directional signs and traffic barricades facilitate the routing of waste to the designated disposal locations. These signs and barricades are placed along the access route to the working face of the C&D unit, and other designated disposal areas as established. Additional signs indicating the location of the expanded C&D disposal area will be posted as needed.

The expanded C&D disposal area will be surrounded on all sides by natural barriers, fencing, or an equivalent means of controlling vehicular access and preventing illegal disposal. Access will be limited by gates, and such gates will be securable and equipped with locks.

Disposal traffic will be facilitated by two existing travel lanes around the C&D unit. Additional roadway constructed to access the working face of the expansion area will be of all-weather construction and kept in good condition. Dust and tracked mud will be controlled on all roads as needed. As stated previously, a level area large enough for truck turning will be maintained near the active disposal area.

The Landfill facility will be staffed during all operating hours to ensure operational compliance.

vi) Safety and Emergency Issues

Posted speed limits and other traffic control measures will be strictly adhered to in order to limit the risk of potential accidents.

Safety equipment will include fire extinguishers in all Landfill equipment and vehicles. Fire extinguishers are also located in the scalehouse and in other structures around the site. First Aid kits are available in each building and in selected vehicles. Two-way radios are issued to each field employee and installed in all buildings to facilitate rapid emergency communication.

In Case of Fire, Explosion or Serious Injury – Dial 911

Emergency Contact:

Name:	Mr. Scott Ribes, P.E.
Business Phone:	(843) 571-0929
After Hours Phone:	911
Business Address:	Bees Ferry Landfill 1344 Bees Ferry Road Charleston SC 29414

vii) Accident/Injury Response

In the event of a work place accident, injury or other illness, the following procedures should be followed:

- Report immediately to the supervisor, even if it appears minor.
- Take the necessary actions to secure the scene to prevent further damage to property or personnel (i.e., shut down all equipment).
- Determine location and severity of injury.
- If it is determined that the injury is serious, dial 911. Describe the site location, location of the injured person(s), and the nature of the injury. If the victim requires medical attention but ambulance service is not deemed necessary, transport victim to nearby approved medical facility.
- Do not attempt to move the victim if he cannot move himself without a great deal of pain unless there is danger of further injury.
- Notify Emergency Coordinator.
- Notify police if appropriate.

Each accident shall be investigated by the supervisor of the employee involved immediately following the accident. The Supervisor's Accident/Injury Investigation Report should be completed as a part of the investigation. The following procedures should be used as a guideline:

- Check the scene by the following means:
- Carefully examine the accident scene.
- Reconstruct the chain of events leading to the accident to determine cause.
- Draw a diagram of the scene. This will assist the Safety Investigator to determine contributing causes of accident.

Note all facts that relate to cause of accident and document the following:

- Facts that may relate to the cause of the accident.
- Procedures used or misuse of equipment.
- Any unsafe conditions, acts or faulty equipment involved.
- Weather conditions.
- Conversations pertinent to the case.
- Collect evidence.
- Interview witnesses and victim.
- Determine cause(s) of accident.
- Complete Accident Investigation Report and submit to the safety office.

viii) Evacuation Procedures

In the event of an emergency situation that requires evacuation, the following procedures should be followed:

- Vehicles unloading waste will be directed away from disposal area by operator personnel. Vehicle operators will be instructed to check in with the scale attendant before leaving the site.

- Landfill employees will exit the disposal area using the equipment they are operating or any faster means available. The supervisor will notify the dispatcher if additional vehicles will be needed to safely evacuate the disposal area.
- The point of assemblage for all Landfill employees will be the parking lot adjacent to the scalehouse.
- The supervisor will account for all employees.

If necessary, the State Police will be called upon to direct traffic leaving the site.

ix) Personnel Description and Management

Responsibility for overall facility management and operation rests with the Landfill Manager. This individual is designated as the contact person for matters related to regulatory compliance. The manager is responsible for providing adequate personnel and equipment in order to operate the facility in accordance with the approved permit documents and the SCDHEC Solid Waste Management Regulations (SWMRs). In addition, the County will have other permanent staff available for operations at the Landfill. The number of employees may vary with the quantity of waste received.

The scale attendant, stationed at the site entrance, is responsible for maintaining complete and accurate records of vehicles and visitors entering and leaving the facility. The scale attendant will also visually inspect incoming vehicles.

A truck spotter will direct incoming vehicles to the proper location to unload refuse at the working face. Their primary function will be to prevent unloading in areas that are not designated for disposal and to visually inspect all loads as they are dumped to assure compliance with posted operating rules.

Equipment operators are responsible for the safe operation of site equipment. As the personnel most closely involved with the actual Landfill operation, these employees are responsible for identifying any potential dangerous conditions, prohibited wastes, as well as careless or improper actions on the part of other persons while on the premises, and reporting such observations immediately to the Landfill Manager.

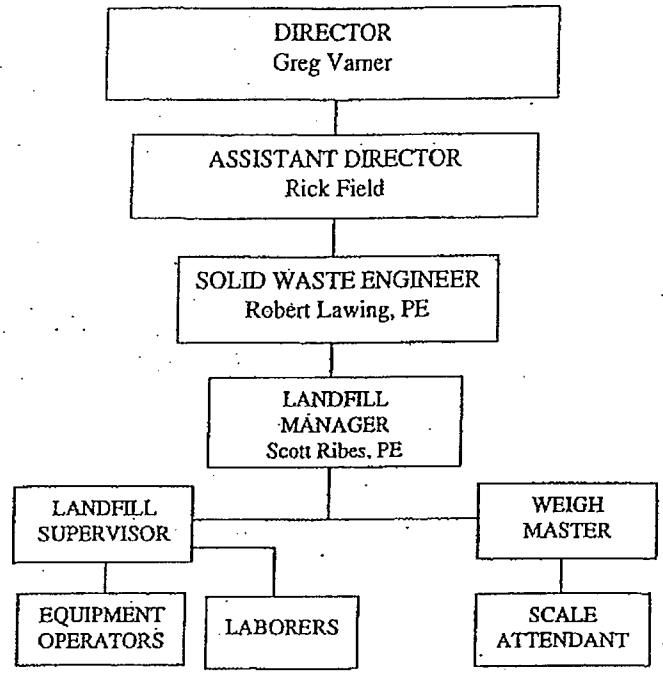
Other services such as landscape maintenance, construction, site clean-up, etc., may be contracted to outside firms.

The current lines of authority for decisions regarding Landfill operation are depicted the organization chart shown in Figure 3.

x) Training

The Landfill will employ a sufficient number of trained people to operate the expanded facility. The training shall include the ability to recognize loads that may contain regulated and hazardous waste. These individuals will be trained to spot indications of suspicious wastes, including: hazardous placards or markings, liquids, powders or dusts, sludges, bright or unusual colors, drums or commercial size containers, and "chemical" odors. The landfill supervisor has been trained and certified via an approved operator training course (example, SWANA-MOLO) as required by Code Section 44–96–460.

Figure 3 Landfill Management Organization



g) **Waste Inspection and Measurement**

In order to assure that prohibited wastes are not entering the Landfill facility, screening programs will be implemented. Waste shall be screened at both the scale house entrance and at the working face by trained personnel. Screening programs for visual and olfactory characteristics of prohibited wastes will be an ongoing part of the Landfill operation.

All vehicles must stop at the scale house located at the entrance of the Landfill facility and visitors are required to sign-in. All refuse transportation vehicles are weighed and the content of the load assessed. Any materials which pose health hazards, cause fire, or which could impact negatively on the environment are deemed unacceptable. The scale attendant(s) requests from the driver of the vehicle entering the Landfill a description of the waste it is carrying to ensure that unacceptable waste is not allowed into the Landfill. The attendant(s) then visually checks the vehicle as it crosses the scale. Vehicles showing signs of hot loads (i.e., smoke) will be directed to unload in a safe area and the fire properly and promptly extinguished. Signs informing users of the acceptable and unacceptable types of waste are conspicuously posted at the scale house.

Approximately four percent of all waste trucks entering the landfill will be selected for a more thorough screening. Selected vehicles are directed to an area of intermediate cover adjacent to the working face where the vehicle will be unloaded. The waste will be inspected for MSW, liquid waste, hazardous waste, PCB waste, and other banned items. Waste is carefully spread using suitable equipment. An attendant trained to identify wastes that are unacceptable inspects the waste discharged at the screening site. If unacceptable waste is found, the load will be isolated and secured by berming off the area.

For regulated hazardous or PCB wastes, the Solid Waste Manager will notify officials of the SCDHEC Division of Solid Waste Management (DSWM) and the procedures for hazardous waste outlined in the Contingency Plan will be followed. The hauler is responsible for removing unacceptable waste from the Landfill property to an approved facility within forty-eight (48) hours of receipt. If no unacceptable waste is found, the load will be pushed to the working face and incorporated with the daily waste. If the waste hauler cannot be identified, the County will be responsible for proper disposal of the waste.

For each vehicle screened, a random waste screening inspection form will be filled out and will be kept on-site. An inspection form should include the following information:

The date and times wastes were received for inspection.

- Source and type of wastes.
- Vehicle and driver identification.
- All observations made by the inspector.
- Final disposition of waste after inspection.

Records of information gathered as part of the waste screening programs will be maintained at the Landfill during the active life of the C&D unit and as long as required by the County and the State of South Carolina.

h) Storm Water Control

The proposed C&D expansion unit will be constructed with maximum waste side slope of 3H:1V and minimum 8 percent top slopes to promote runoff and prevent water from ponding over or in the waste. Side slope terraces (benches) and some perimeter drainage channels at the toe of the slope will provide stormwater runoff, erosion, and sediment control. The drainage channels allow for the movement of surface water from landfilling activities and provide a settling zone for sediments carried from the site. The channels are constructed to allow drainage via sediment basins to natural outfalls and tributaries.

Measures to control sedimentation and erosion will include the drainage channels, sediment basins, silt fences, slope drain pipes, sediment traps, and temporary and permanent seeding. Drainage control measures will include run-on, run-off systems designed, constructed, and maintained to manage the water volume generated from a 24-hour, 25-year storm. All measures will be constructed or installed in accordance with standards specified in the South Carolina Stormwater Management and Sediment Control Handbook. All erosion and sediment control measures shall be inspected every seven days or after each rainfall occurrence that exceeds 0.5 inches. Damage or ineffective devices shall be repaired or replaced as necessary. Drainage from the C&D area will flow to Sediment Basin #3.

Sediment basins will also prevent the discharge of pollutants that violate requirements of the Clean Water Act, including, but not limited to, the National Pollution Discharge Elimination System (NPDES) requirements into the waters and wetlands of the United States. The Facility will continue to operate under the existing NPDES Permit # SCR 001220.

i) Fire Prevention

Smoking will be confined to designated areas only, away from active areas of the Landfill, fueling stations, methane collection, and other fire sensitive areas.

Open burning is not permitted at the C&D unit. Fires that develop spontaneously at the C&D unit working face will be extinguished by covering the burning area with soil. An ample supply of soil will be stored near the working face during operational hours.

i) **Fire on Landfill Working Face**

The following actions should be taken if a fire develops at the working face:

- Notify the supervisor of the existence of the fire.
- If the supervisor determines the fire is controllable, follow his instructions. Compactors should be used to cut and push burning garbage away from working face and then cover with soil until fire is extinguished.
- If the supervisor determines the fire to be uncontrollable, evacuate the area immediately using predetermined evacuation paths.
- Concurrently, the supervisor notifies the scale attendant via two-way radio that a fire has developed on the C&D unit and status of the fire. If it is determined that the fire is uncontrollable, the supervisor advises the scale attendant to call 911 for fire and rescue. If the fire is deemed to be controllable, the supervisor informs the scale attendant of steps taken to control the fire and also when the fire is extinguished. The scale attendant will not allow additional waste disposal vehicles to enter the Landfill until the fire has been extinguished. The scale attendant will dispatch a vehicle to the Landfill entrance to escort emergency vehicles to the location of the fire.
- The supervisor and Landfill employees will assist fire and rescue personnel as directed by the senior fire district officer.
- The supervisor will ensure that all emergency equipment is prepared for reuse before resuming normal operations.

ii) **Fire in Landfill Equipment**

The main goal in controlling a fire involving landfill equipment is for the equipment operator to evacuate to safety. The following steps should be followed in case of a fire involving landfill equipment.

- Evacuate the equipment immediately upon discovery of a fire.
- Inform the supervisor of the exact location of the fire, the equipment involved, and whether any individuals remain in the equipment.
- Follow the supervisor's instructions to control the fire and to allow rescue of injured individuals remaining in the equipment.
- Concurrently, the supervisor notifies the scale attendant via two-way radio of the existence of the fire involving equipment and if any personnel are injured and/or remain in the equipment. The scale attendant will call 911 for fire and rescue if needed and will dispatch a vehicle to landfill entrance to escort emergency vehicles to the location of the fire. The scale attendant will not allow additional vehicles to enter the Landfill until the fire is extinguished.
- If the supervisor deems the fire to be controllable and no injuries have occurred to personnel, the fire will be extinguished by appropriate measures (i.e., fire extinguisher).

If the supervisor determines assistance from local fire and/or rescue squad will be required, efforts to control the fire to prevent spreading will be taken until the fire and rescue squad arrive. These measures include:

- Preliminary First Aid on injured personnel.
- Continuing to soak burning equipment with water from water truck
- Moving other equipment from vicinity of burning equipment.

- Directing vehicles currently unloading waste away from the disposal area.

The supervisor will prepare a written report describing the details of the fire. The report should be submitted within three business days and at minimum shall contain the following information:

- Date and time fire was discovered.
- Name of individual discovering fire.
- Name of any injured personnel and nature of such injuries.
- Steps taken to control/extinguish fire.
- Describe whether assistance from local authorities was required.
- Time fire was extinguished.
- Outline steps taken to ensure emergency equipment was restored to intended use.
- Time normal operations resumed.
- Suspected cause of fire.
- Steps taken to reduce risk of incident recurring.

iii) **Explosions**

In the event of an explosion at the C&D unit, the following procedures should be followed:

- Evacuate to a safe area.
- Assist in rescue of injured personnel.
- The supervisor will notify the scale attendant of the occurrence of the explosion and the results of such explosion (fire, injured personnel, and malfunctioning equipment). The scale attendant will dial 911 as instructed by the supervisor. The scale attendant will not allow additional waste vehicles to enter the facility. A vehicle will be dispatched to the entrance of the facility to escort emergency vehicles to scene of the explosion.
- Fires that occur as a result of the explosion will be controlled whenever possible.
- The supervisor and Landfill employees will assist fire and rescue personnel as directed by the senior fire officer.
- The supervisor will ensure that all emergency equipment is prepared for reuse before resuming normal operations.
- The supervisor will alert the scale attendant when the situation is under control and when normal operations can resume.
- The supervisor will prepare a written report of the incident and submit it within three working days.

j) **Vector Control**

Vectors such as rodents, mosquitoes, flies, birds, etc., are attracted by opportunities for food and shelter. C&D waste is not a food source for many rodents. Vectors seeking shelter in the waste mass can be discouraged by covering of the waste and proper grading to prevent water ponding. If vectors become a problem, a licensed exterminator or other legal means of control shall be implemented.

[redacted]

k) Odor Control

Odors which emanate from solid waste as it is placed and compacted are generally limited to within a short distance of the workface. The waste will be covered at a minimum on a monthly basis. If odor becomes a problem, then the Landfill will either implement increased use of cover or another more effective method.

l) Dust Control

Regular maintenance of soil stockpiles including frequent wetting or temporary seeding will serve to limit the generation of windblown dust. Similarly, application of water or calcium chloride to on-site roads will minimize dust.

m) Hours of Operation

The normal hours of operation for waste disposal at the Bees Ferry facility are between the hours of 8:00 AM and 4:00 PM, Monday through Friday and between 8:00 AM and 3:30 PM on Saturday. The Landfill, including the C&D unit, is normally be closed on Sundays, except where prior permission has been given to receive waste for special instances such as a natural disaster, unusual weather, etc. Special notices are to be posted at the scale house, at least one week in advance, advising users of observed holidays. Non-disposal activities (daily cover, construction, etc.) may occur outside of normal operating hours provided that they comply with local community agreements, if any.

n) Equipment List

Equipment requirements may vary in accordance with the method or scope of C&D operations at any given time. To effectively operate the proposed C&D expansion unit at the approved rate, a compactor and/or bulldozer, should be available for use on the working face during all operating hours. Table 2 lists the equipment expected to be available at this facility. The table is not meant to be all-inclusive. Model numbers are meant to designate the type and capacity of a particular machine and not the specific machine of a manufacturer. Additional or different types of equipment may be provided as necessary to enhance operational efficiency. This equipment will be available to assist in the C&D unit operations if necessary.

Table 2
Summary of Equipment

[redacted]				
Compactor	2	1	1	Compact and push garbage
Bulldozer	2	½	½	Cover placement push garbage/borrow area
On-Road Dump Trucks	3	1		Daily cover
Off-Road Dump Trucks	2			Daily cover
Excavator	2	½	½	Daily cover
Wheel Loader	3	0	0	General Maintenance

o) **Contingency Plan**

The County shall notify SCDHEC by telephone immediately upon implementation of a contingency plan. Written confirmation will be provided as a follow-up.

i) **Equipment Breakdown**

Proper maintenance of equipment will prevent frequent mechanical breakdowns; however, they cannot be totally avoided.

Where possible, spare or substitute equipment will be provided as needed. If spare or substitute on site equipment is not available, other equipment may be obtained from other Charleston County operations. If other equipment is not available after 7 days, arrangements will be made for replacement equipment until the original equipment can be placed back in service.

ii) **Inoperable Periods**

A natural disaster may cause the Landfill Manager to deem it inappropriate to fully operate the C&D unit for a short period of time. In such an event, those operations deemed unsuitable or unsafe by the Landfill Manager would be curtailed. During that period, waste arriving at the site would be directed to nearest appropriate commercial landfill facility.

iii) **Hazardous Waste**

In the event that identifiable hazardous waste or waste of questionable character is detected at the C&D unit, appropriate equipment, protective equipment, personnel, and materials as necessary will be employed to isolate the wastes. The SCDHEC DSWM will be notified immediately that an attempt was made to dispose of hazardous waste at the C&D unit. In addition, the Charleston County Hazardous Materials Coordinator shall be notified at (843) 958-4067 or (843) 958-4061. If the vehicle attempting disposal of such waste is known, all attempts shall be made to prevent that vehicle from leaving the site or, if the vehicle has left the site, immediate notice will be served on the owner of the vehicle that hazardous waste, for which they have responsibility, has been disposed of at the C&D unit. If the waste hauler cannot be identified, the County will be responsible for proper disposal of the waste.

The Landfill staff shall assist the SCDHEC DSWM as necessary and appropriate in the removal and disposition of the hazardous waste and in the prosecution of culpable parties. If needed, the hazardous waste will be covered with either on-site soils or other tarping material until such time when an appropriate method can be implemented to properly handle the waste. The cost of the removal and disposing of the hazardous waste shall be charged to the owner of the vehicle involved. Any vehicle owner or operator who knowingly dumps hazardous waste in the C&D unit may be barred from using the Landfill.

If an incident should occur where hazardous waste is found at the C&D unit the event shall be documented as follows:

- Date and time of material detection.
- Hauler name (company and driver).
- Material(s) detected.
- Material generator(s) if able to identify.
- Action(s) taken if extreme toxicity or hazard was discovered.
- Landfill employee in responsible charge.

p) **Waste Content**

This permit modification provides for the acceptance of waste types listed in SCDHEC R.61-107.11 Part IV Appendix I, Acceptable Waste for Construction, Demolition, and Land-Clearing Debris Landfills. Unacceptable waste, as defined by R.61-107.11 and SCDHEC Appendix II, will be prohibited from disposal in the C&D unit. There is no change in the types of waste accepted as a result of the proposed expansion. Copies of both Appendix I and II are included in Appendix C of this permit modification.

q) **Seasonal High Water Data**

SCDHEC's Regulation 61-107.107.11 requires a two foot separation between the seasonal high groundwater and the proposed subgrade.

In the Permit Application, Construction, Demolition and Land Clearing Debris Landfill (1997) for the Landfill, BP Barber did not establish a seasonal high groundwater (SHGW) elevation map for the C&D landfill. Their 1997 permit application was based on the readings from 9 wells and included a table of data and potentiometric maps from one set of readings. Groundwater monitoring at the Landfill has been conducted by Davis & Floyd, Inc. of South Carolina since 1993. All of the depths to ground water readings used to prepare the SHGW were taken by Davis & Floyd during routine groundwater monitoring events or by HDR. Discrepancy exists between the top of casing survey elevations given in BP Barber's application and those determined by Davis & Floyd and HDR, therefore the top of casing elevations obtained from Davis & Floyd or HDR have been used.

In 2004 HDR established a SHGW surface for the lined MSW permit application based on data from 21 wells. Since that time 4 additional wells have been installed at the site, one of which (PZ-45) is in the footprint of the C&D expansion. The SHGW elevation determined here is based on all available groundwater data from the site.

Historical high ground water data is based solely on readings from specific individual dates; therefore, the data does not account for the potential of higher ground water levels occurring at other times. A statistical approach was taken to establishing the SHGW surface and a statistical evaluation conducted to determine the seasonal high ground water in order to reduce the risk that future groundwater readings could indicate a reduction of the required separation. The minimum, maximum, mean and range of groundwater elevations were reviewed. The standard deviation from the mean for each well was calculated. After evaluating the data, piezometer (PZ) wells PZ-43 and recently installed PZ-45 stood out from the rest of the data set. Both wells had a smaller range and hence smaller standard deviation than the rest of the wells. When the SHGW surface was established for the lined MSW landfill HDR increased the standard deviations of the more recent PZ wells to match the statistics of the longer term monitoring wells (MW). The additional data acquired for those wells since that time suggest that, while the correction was appropriate, it is no longer necessary as the unadjusted methodology yields similar results. Therefore, only the standard deviation for wells PZ-43 and PZ-45 are increased in this determination of SHGW. In the MSW SHGW analysis a correction factor of 0.15 was added to all PZ standard deviations. While the need for adjusting the remaining PZ wells was negated by obtaining additional data, PZ-43 was abandoned to construct Cell 1 of the MSW landfill so the previous correction was maintained for this analysis. The correction of PZ-45 is based on the ratio of the median of standard deviations between the second period (2/14/07 to 6/26/07) of 0.16 and the median of all wells over the entire data set of 0.66. Therefore PZ-45's overall standard deviation of 0.14 was adjusted to 0.59.

The estimated SHGW elevation is established by adding three standard deviations (adjusted for PZ-43 and PZ-45) to the mean water level for each well. Three standard deviations represent a confidence level that 99.9 percent of all observations would be less than this value. In two cases (PZ-41 and MW-9A), the mean plus three standard deviations is greater than the existing ground elevation. As these areas are not in the 100-year flood plain, it is assumed that this method

overestimates the SHGW. In these locations, the ground surface is used to represent the SHGW elevation. At one well (MW-32), the maximum recorded groundwater elevation is greater than the mean plus three standard deviations; therefore, the high reading was used as the SHGW elevation.

A copy of the data and analysis used to generate the SHGW surface is included in Appendix B, Calculations. The statistical evaluation resulted in a greater amount of separation than the historical data would indicate. In both cases the minimum level of two feet of separation required by DHEC regulations is exceeded. Table 3 illustrates the separation between the estimated SHGW elevation and the proposed subgrade elevation (the bottom of the liner system) at piezometer locations. The required separation is achieved or exceeded at all borings.

Table 3
Groundwater Separation

PZ-45	13.8	12.2	10.67	15.0	2.8

The SHGW is illustrated on Drawing B-01, Seasonal High Groundwater. This SHGW surface does not decrease the required separation provided within the footprint of lined MSW landfill at any location. HDR's SHGW surface appears generally higher than BP Barber's, based on their design subgrade. Waste already in place across the majority of the currently permitted C&D is within separation based on the data used by BP Barber but does not meet the permitted grades calculated by HDR for the expansion area. Therefore, it is the intent of this application for this SHGW surface to apply only to the C&D expansion footprint.

The base grades of the expansion were determined using both SHGW and settlement calculations. Results of the settlement calculations indicate that base grades can be expected to settle 6 inches within the expansion area. Therefore, the base grades were designed to be 2½ feet above the SHGW in order to accommodate this settlement and maintain the required 2 foot separation.

r) Closure Plan

i) Final Cover – Description

In compliance with the Solid Waste Management Rules, the Landfill will place a final cap system over all waste placed in the C&D unit.

The final cover will consist of a two foot thick final earth cover suitable for sustaining native grasses or other suitable ground cover. The materials of the final cover layer should be selected considering soil type, nutrient levels, susceptibility to erosion, and permeability. Off-site borrow material is expected to be available for the final cover soil layer.

Vegetation will be selected based upon the following characteristics:

- Locally adapted species which are resistant to drought or temperature extremes.
- Ability to thrive and develop a good stand to resist erosion.
- Ability to survive and function with little or no maintenance.

All cover material will be free of putrescible material, solid waste, construction debris, and other deleterious materials.

ii) **Final Cover - Installation**

Within one month following final receipt of waste at the site or part of the site, the application of final cover shall begin as stated in Rule 61-107.11, Part IV G.1. The final cover materials shall be placed in a manner consistent with erosion prevention. The cover shall maintain positive drainage to prevent ponding on the Landfill. The thickness of the required two foot thick final cover will be verified by either hand augers or settlement plates at a frequency of 4 per acre. Documentation of the thickness verification will be included in the closure certification report. The documentation shall include the following: date, location coordinates, name of person verifying the thickness, and the thickness measured. The finished surface shall be seeded with native grasses or other suitable ground cover within 5 days of completion of that portion of Landfill. Refer to Drawing C-09 for the procedure and schedule for seeding. A minimum of 75 percent ground cover with no substantial bare spots shall be established and maintained into the second growing season.

A signed certification from an independent registered professional engineer licensed in the State of South Carolina verifying that closure has been completed in accordance with this closure plan and the approved facility permit will be submitted to the SCDHEC DSWM.

iii) **Final Cover – Extent**

The maximum area of the C&D unit (including the expansion) requiring a cap at any one time shall be 50 acres.

iv) **Surface Water Control Measures**

The C&D unit is designed to have initial top slopes of 8 percent and side slopes of 3H:1V. Final contours have been established to allow the surface water on the C&D unit to drain off the final cover while limiting erosion potential. Surface water runoff from the top slopes will be intercepted by a diversion berm that separates the top slopes from the side slopes and then carried off the cover via slope drains. The side slopes incorporate a system of drainage terraces (benches) to limit surface water flow length. The vertical spacing of the side slope terraces is approximately 40 feet. The side slope terraces will drain into the slope drains which, in turn, will drain to the perimeter drainage channel. Drainage terraces will direct flow across the 3H:1V slopes into the slope drains and into a sediment basin. The surface waters will be conveyed by the perimeter drainage channel to a sedimentation basin located adjacent to the C&D unit.

v) **Permanent Erosion Control Measures**

As shown in Drawing C-03, Proposed Final Grades, a system of drainage channels and sedimentation basins will be used to protect the streams from sediment laden runoff. The sedimentation basins were designed to control the 25-year storm event and achieve a minimum of 80 percent efficiency in settling. The sedimentation basin design calculations may be found in the Appendix H of the Permit Application for the Bees Ferry Landfill Lined MSW Unit, approved October 20, 2005.

vi) **Settlement Subsidence and Displacement**

During the active life of the C&D unit, waste placement methods will include the use of heavy compaction equipment to spread and compact the waste in layers thereby reducing voids and minimizing the potential for differential settlement. Final slopes of the Landfill are sufficiently steep to allow for anticipated subsidence and maintain long-term positive drainage.

vii) **Maximum Waste Inventory**

Based upon the grading plans included in this permit application, the maximum anticipated volume of waste placed within the defined boundaries is approximately 5.4 million cubic yards.

viii) **Schedule**

Prior to the commencement of closure activities, a notification of the intent to close will be provided to the Director of SCDHEC DSWM. A sign indicating the anticipated date of closure and the date of final waste acceptance will be conspicuously posted at the facility at least 5 days in advance. The County may take other steps to notify the public of the planned closure as well.

Closure activities will begin within 30 days of the known final receipt of waste or, if there is remaining capacity and a reasonable likelihood for receiving additional waste, within one year of final receipt of waste. The closure plan will be completed in accordance with SC DHEC regulations. Based on the 50 acre footprint of the expanded C&D unit, it is expected that the closure construction period would be up to 12 months from Contractor's notice to proceed until the Engineer's certification submittal. Figure 4 provides a proposed schedule outlining the steps to be taken for closing the C&D unit.

The following procedures will be implemented following closure:

- At least one sign notifying all persons of the closing of the unit and that wastes are no longer accepted will be posted. Suitable barriers will be installed as necessary at former accesses to prevent new waste from being deposited in a closed area unit.
- Within 30 days of final closure approval from SCDHEC DSWM of the facility, a survey plat, prepared by a professional land surveyor registered in the State of South Carolina, indicating the location and dimensions of all landfill disposal areas, will be recorded.
- A notation shall be recorded on the deed notifying any potential purchaser of the property that the land has been used as a solid waste management unit and that future use is restricted under Paragraph (i) of Rule II Part IV. G. 6.b. A copy of the deed notation as recorded shall be filed with the operating record.

ix) **Proposed Final Elevations**

The final grading for closure is shown on Drawing C-03, Proposed Final Grades. The contours have been established to reflect all C&D waste expected to be received and the final cover system.

x) **Closure Construction Cost**

The engineering opinion of probable closure construction cost is shown in Table 4.

TABLE 4
CLOSURE CONSTRUCTION COST ESTIMATE

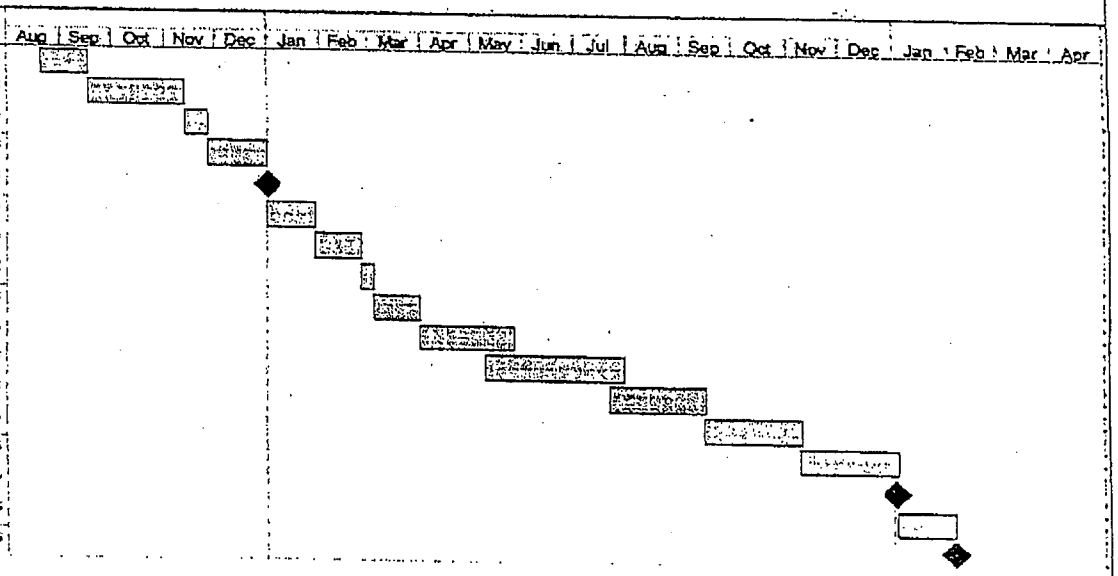
	Item Description	Quantity	Unit	Unit Price	Total
CLOSURE AREA		50.0	Acre		
1	MOBILIZATION, CQC, PROJECT ADMIN., BONDS	$5,216,700	of Work	4%	$208,668
2	SURVEYING AND CONTROL	50.0	Acre	$2,000	$100,000
3	EROSION AND SEDIMENT CONTROL MAINTENANCE	50.0	Acre	$1,500	$75,000
4	GRADING PREPARATION	50.0	Acre	$1,100	$55,000
5	MISCELLANEOUS STRUCTURAL FILL	40,333	cy	$21	$847,000
6	CAP SYSTEM				
	Construct Top Soil Layer (2')	161,333	cy	$21	$3,388,000
7	PERIMETER ROAD MAINTENANCE				
	Grading	29,089	sy	$3	$87,267
	Furnish and Install Access Road ABC Stone (0.75')	13,000	cy	$30	$390,000
8	EROSION AND SEDIMENT CONTROL CONSTRUCTION				
	Furnish and Install Rip-Rap Ditch Protection	950	lf	$50	$47,500
	Furnish and Install Downchutes	2,560	lf	$25	$64,000
	Furnish and Install Erosion Control Matting	24,200	sy	$1.50	$36,300
	Furnish and Install Seed and Mulch	50.0	Acre	$1,500	$75,000
9	LANDSCAPING / GENERAL	$5,165,100	of Work	1%	$51,651
	Sub Total	-	-	-	$5,425,400
	Contingency	$5,425,400	of Work	10%	$542,540
	Engineering Plans & Specifications	50.0	Acre	$1,500	$75,000
	Construction Administration	$5,425,400	of Work	2%	$108,508
	Third Party CQA	9	Months	$25,000	$225,000
				TOTAL 2007 COSTS	$6,376,500
				2007 Cost per Acre	$127,500

Notes:

1. Based on closing 50 acres (C&D unit).
2. While onsite soils are available the cost used is for offsite soils.
3. All quantities and costs are estimates. They should be reviewed and adjusted prior to construction.
4. Items 3 & 4, assume some grading outside the unit.
5. Item 5, this is for soil to smooth the surface before installing cap system.
6. Item 7, assumes the road was built during cell construction. This is for repair work.
7. Item 8, Rip-Rap Protection, assumes 7 downchutes with 100' outlet apron each and 2 basins with 125' of apron each.
8. Item 10, assumes some landscaping will be performed.

Figure 4
Bees Ferry Construction and Demolition Landfill
Closure Schedule

ID	Task Name	Duration
1	Engineering Site Survey	4 wks
2	Preparation of Plans & Specifications	8 wks
3	Review Bid Package	2 wks
4	Advertise and Receive Bids	5 wks
5	Last Receipt of Waste in Unit	0 wks
6	Contractor's Site Survey	4 wks
7	Award & Execute Agreements	4 wks
8	Notice to Proceed and Mobilization	1 wk
9	Subgrade Preparation (Cap & Slopes)	4 wks
10	Cap Storm Water Control Installation	8 wks
11	Cap Installation	12 wks
12	Seeding	8 wks
13	Site Survey (As-Built)	8 wks
14	Prepare Certification Report	8 wks
15	Submit Certification to SCDHEC	0 wks
16	SCDHEC Review of Certification Report	5 wks
17	Receive Closure Certification	0 wks



Filename: Closure Schedule.mpp
HDR Project No. 6985-15070-018

Task

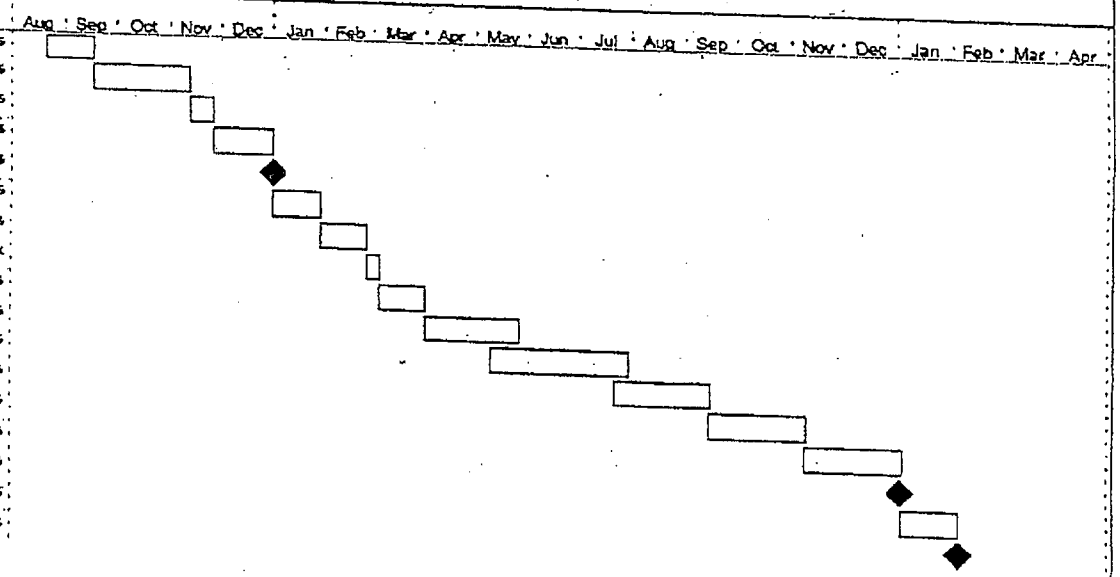
Milestone

C&D PERMIT 0034

0020

Figure 4
Bees Ferry Construction and Demolition Landfill
Closure Schedule

ID	Task Name	Duration
1	Engineering Site Survey	4 wks
2	Preparation of Plans & Specifications	8 wks
3	Review Bid Package	2 wks
4	Advertise and Receive Bids	5 wks
5	Last Receipt of Waste in Unit	0 wks
6	Contractor's Site Survey	4 wks
7	Award & Execute Agreements	4 wks
8	Notice to Proceed and Mobilization	1 wk
9	Subgrade Preparation (Cap & Slopes)	4 wks
10	Cap Storm Water Control Installation	8 wks
11	Cap Installation	12 wks
12	Seeding	8 wks
13	Site Survey (As-Built)	8 wks
14	Prepare Certification Report	8 wks
15	Submit Certification to SCDHEC	0 wks
16	SCDHEC Review of Certification Report	5 wks
17	Receive Closure Certification	0 wks



Filename: Closure Schedule.mpp
HDR Project No. 6985-15070-018

Task

Milestone

C&D PERMIT 0035

0201

[redacted]

ENGINEERING DRAWINGS

C&D PERMIT 0036

PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

CERTIFIED MAIL

October 17, 1997

Mr. Robert O. Lawing
Charleston County
13 Romney Street
Charleston, South Carolina 29403-3844

RE: Charleston County Bees Ferry Construction, Demolition and Land-Clearing Debris Landfill
Permit #101001-1201
Charleston County

Dear Mr. Lawing:

Enclosed is a permit for the Charleston County Bees Ferry Construction, Demolition, and Land-Clearing Debris Landfill. This permit is issued under Regulation 61-107.11, Construction, Demolition and Land-Clearing Debris Landfills, copy enclosed.

Please note, changes may occur in State landfill requirements and at such time as the Department accomplishes the necessary regulatory changes, the Permittee will be required to comply with any applicable portions of such revisions.

The issuance of this permit marks the conclusion of the Facility Engineering (Permitting) Section involvement with the referenced project. However, if you should have any questions about the permit itself, please contact Juli Blalock, at (803) 896-4213. Questions and future correspondence pertaining to the operation and compliance of the referented facility should be referred to Cathy Montgomery, at (803) 896-4204. General questions should be referred to Kristy Carter with the Trident District Office, at (803)740-1590.

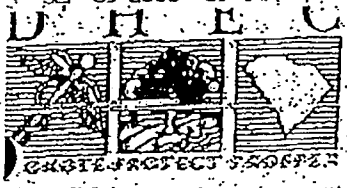
Sincerely,

Robert L. Gill, P.E., Manager
Facility Engineering Section
Division of Mining & Solid Waste Permitting
Bureau of Land and Waste Management

RLG/JEB JEB

cc: Kristy Carter, Trident District, EQC
Kim Tapps, PG, Division of Hydrogeology
Joey Privette, PE, B.P. Barber & Assoc.
Cathy Montgomery, Solid Waste Compliance

C&D PERMIT 0037



2600 Bull Street
Columbia, SC 29201-1708

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
CONSTRUCTION, DEMOLITION AND LAND-CLEARING DEBRIS WASTE PERMIT

Date of Issue: October 17, 1997 Effective Date: November 7, 1997

Permission is hereby granted to:

Name of Facility:	Charleston Co. Bees Ferry C&D/LCD Landfill
Permittee:	Charleston County
Mailing Address:	13 Romney Street
	Charleston, South Carolina 29403
Contact Person:	Robert Lawing
Telephone:	(803)720-7111

for the operation of a construction, demolition and land-clearing debris landfill located at the Charleston County Bees Ferry Landfill approximately five (5) miles southwest of the City of North Charleston off State Hwy. 57.

This permit is issued pursuant to S.C. Code Ann. Section 44-96-10 et. Seq. (Supp. 1995) and 25A S.C. Code Regs. 61-107.11 (Supp. 1995), The authority granted below is subject to the requirements of the previously mentioned law and regulations and the attached.

Patrick T. Walker, Director

Robert L. Gill, P.E., Manager
Facility Engineering Section

Division of Mining and Solid Waste Permitting
Bureau of Land and Waste Management

If the permit is appealed, the effective date of the permit will be revised as necessary. Any request for review or appeal of this permit must be served in person or by mail within fifteen (15) days of the date of issuance , on:

The Board of Health and Environmental Control
Office of the Commissioner
2600 Bull Street
Columbia, South Carolina 29201
(803) 734-4880

Charleston County Bees Ferry Construction, Demolition, and Land-Clearing Debris Landfill
Permit #101001-1201

A. Special Permit Conditions

1. The Permittee shall adhere to the approved design plans and specifications and operational plan, received March 11, 1997.

2. This permit is limited to the disposal of the items listed in Appendix I of R.61-107.11.

3. The permittee's average yearly rate of disposal for this landfill is 140,400 tons per calendar year based on a daily disposal limit of 450 tons per day. Information concerning the rate of disposal must be included in the annual report required by Section F.4. of R.61-107.11, Part IV.

B. Environmental Monitoring Permit Conditions

Upon obtaining data indicating that there may be environmental and/or health problems associated with the landfill, monitoring (including groundwater, surface water, and air quality) may be required by the Department, as appropriate, and based on a case-by-case evaluation to ensure protection of the environment.

Y/35 343

The State of South Carolina.

COUNTY OF CHARLESTON

KNOW ALL MEN BY These Presents, That

AMERICAN MEDICAL INTERNATIONAL, INC.,

in the State aforesaid, for and in consideration of the sum of

Dollars

to it in hand paid at and before the sealing of these presents, by The County of Charleston,

in the State aforesaid, County aforesaid, (the receipt whereof is hereby acknowledged)

have granted, bargained, sold and released, and by these Presents do grant, bargain, sell and release, unto the said The County of Charleston, its successors and assigns, all of its right, title and interest in and to the following described property, to wit:

ALL that certain piece, parcel or tract of land, lying and being in the County of Charleston, State aforesaid, and shown and designated as 200.00 Acre Tract on a plat entitled "Plat Showing A 112.14 Acre Tract Owned By Charleston County, and A 200.00 Acre Tract Owned By Georgia Pacific Investment Corp. About To Be Conveyed To And Added To The Existing Tract Owned By Charleston County, Located In St. Andrew's Parish, Charleston County, S.C." prepared by James C. Rogers, Surveyor for the State of South Carolina, and Director of Public Works Dept., Charleston County Council, said plat being dated January 26, 1984; and recorded in the R.M.C. Office for Charleston County, in Plat Book AZ, at Page 96, on March 9, 1984.

SAID tract having such size, metes and boundings, measuring and containing as will by reference to said plat which is incorporated herein be more fully seen.

SUBJECT to all easements, rights-of-way and/or other matters of record affecting said tract as will be seen by reference to the public records of Charleston County.

SUBJECT to the reservation of full timber rights as to the described premises to Georgia Pacific Investment Corp. for a period of two (2) years from the date hereof.

BEING the same premises conveyed to American Medical International, Inc., et. al., by deed of Georgia Pacific Investment Corp., dated 2/15/81 and recorded in the R.M.C. Office for Charleston County, S.C., on 2/15/81 in Book ——— at Page ———.

T.M.S. #'s: ~~286-00-00-022 and 301-00-00-005~~ 301-00-00-026

Grantee's Address: c/o William E. Koopman
Assistant Administrator
The County of Charleston

C&D PERMIT 0040

TOGETHER with all and singular the Rights, Members, Hereditaments and Appurtenances to the said Premises belonging, or in anywise incident or appertaining.

TO HAVE AND TO HOLD, all and singular the said premises before mentioned unto the said The County of Charleston, its Successors and Assigns forever

And the said American Medical International, Inc. does hereby bind itself and its successors, to warrant and forever defend all and singular the said premises unto the said The County of Charleston, its Successors and Assigns, against itself and its successors lawfully claiming or to claim the same, or any part thereof.

IN WITNESS WHEREOF, AMERICAN MEDICAL INTERNATIONAL, INC., (Insert name of Corporation) has caused these presents to be executed in its name by JERRY WEISMAN, (Insert name of President or Vice-President) its Vice-President and its corporate seal to be hereto affixed this 16th (Insert name of Sec. or Treas.) day of March, in the year of our Lord one thousand nine hundred and eighty-four, and in the two hundred and eighth year of the Sovereignty and Independence of the United States of America.

Signed, Sealed and Delivered in Presence of:

AMERICAN MEDICAL INTERNATIONAL, INC.

BY _____ (Seal)
JERRY WEISMAN
ITS: Vice-President

C&D PERMIT 0041

CALIFORNIA

The State of ~~South Carolina~~

County of LOS ANGELES

PERSONALLY appeared before me Joseph S. Vela

who, on oath, says that he saw the within named AMERICAN MEDICAL INTERNATIONAL

by JERRY WEISMAN, *its*

Vice-President *sign the within Deed,* xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

and the said Corporation, by said officers, seal said Deed, and, as its act and deed, deliver the same, and that he with Kathy L. Duff

witnessed the execution thereof.

Joseph S. Vela

JOSEPH S. VELA *(Witness)*

SWORN to before me, this 16th *day of* June, *A. D. 1984*

Jane Buckingham Garofalo (Seal)

Notary Public, CALIF.

JANE BUCKINGHAM GAROFALO

MY COMMISSION EXPIRES: January 22, 1988

OFFICIAL SEAL
JANE BUCKINGHAM GAROFALO
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My comm. expires JAN 22, 1988

C&D PERMIT 0042

The State of South Carolina,

COUNTY OF CHARLESTON

AMERICAN MEDICAL INTERNATIONAL, INC.,

TO

THE COUNTY OF CHARLESTON

TITLE TO REAL ESTATE

Filed this _____ day of _____

A. D. 19 _____

at _____ o'clock, _____ M.,

and recorded Vol. _____ Page _____

Fee, $ _____

_____

Register Mesne Conveyance.
_____ County, S. C.

Recorded this 23rd day of March 19 84

in PROPERTY RECORD CARD page _____

For Pauline S. Kogen

_____

Auditor CHARLESTON County.

C&D PERMIT 0043

0209

[redacted]

Daniel C. Pennick, AICP
Interim Director

CHARLESTON COUNTY
SOUTH CAROLINA
PLANNING DEPARTMENT

843.202.7200
1.800.524.7832
Fax: 843.202.7222
Lonnie Hamilton, III
Public Services Building
4045 Bridge View Drive
North Charleston, SC 29405-7464

March 29, 2007

TO WHOM IT MAY CONCERN;

This will certify that 1366 Bees Ferry, also known as Tax Map Number 301-00-00-026, is zoned I

This zoning classification authorizes usage under Chapter 6.1 of the Zoning and Land Use Regulations.

Regards,

Fran Welborn

Zoning Specialist

See Attachment

C&D PERMIT 0044

	Septic Tank Installation, Cleaning, or Related Services																						S	S	
	Solid Waste Combustors or Incinerators, including Cogeneration Plants																							S	
	Solid Waste Landfill (Public)	C																						S	§ 6.4.51
	Waste Collection Services																							S	
	Waste Transfer Facilities																							S	
COMMERCIAL																									
ACCOMMODATIONS																									
	Bed and Breakfast Inns	C	C	C	C	C	C	S	S	S	S	S	S	A	A	S		C	C	C	C	C	C		§ 6.4.4
	Hotels or Motels																		S	A	A		A	A	
	Rooming or Boarding Houses													A	A				S	A	A	A	A		
	RV (Recreational Vehicle) Parks or Campgrounds	S	S	S	S	S																			§ 6.4.12
ANIMAL SERVICES																									
	Kennel	A	A	A	A	C	C	S	S	S											S				§ 6.4.54
	Pet Stores or Grooming Salons																				C	S	A	A	§ 6.4.32
	Small Animal Boarding (enclosed building)	A	A	A	A	C	C	C	C	C											C	S	A	A	§ 6.4.32
	Veterinary Services	A	A	A	A	S	S												C	C	C	A	A	A	§ 6.4.32
FINANCIAL SERVICES																									
	Banks																	C	C	C	C		A	A	§ 6.4.33
	Financial Services, including Loan or Lending Services, Savings and Loan Institutions, or Stock and Bond Brokers																	C	C	C	C		A	A	§ 6.4.33
FOOD SERVICES AND DRINKING PLACES																									
	Bar or Lounge (Alcoholic Beverages), including Taverns, Cocktail Lounges, or Member Exclusive Bars or Lounges																			S	S	S	S	S	§ 6.4.15
	Catering Service		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	C	C	C	C	A	A	A	§ 6.4.34
	Restaurant, Fast Food, including Snack or Nonalcoholic Beverage Bars																			C	C	C	C	C	§ 6.4.15
	Restaurant, General, including Cafeterias, Diners, Delicatessens, or Full-Service Restaurants																	C	C	C	C	C	C	C	§ 6.4.15
	Sexually Oriented Business																							C	§ 6.4.18

0211

TABLE 6.4.1																									
Drive-In Theaters																				C		C	A	§6.4.6 §6.4.11
Golf Driving Ranges			S	S	S	S	S	S	S															§6.4.11
Outdoor Shooting Ranges	C	C	C	C																				§6.4.11
Recreation or Vacation Camps	C	C	C	C	C																			§6.4.11
RELIGIOUS, CIVIC, PROFESSIONAL AND SIMILAR ORGANIZATIONS																									
Business, Professional, Labor, or Political Organizations																	A	A	A	A	A	A	A		
Social or Civic Organizations, including Youth Organizations, Sororities, or Fraternities			S	S	S	S	S	S	S	S	S	S	S	S	S		S	S	A	A	A	A	A		
Religious Assembly	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.13	
Social Club or Lodge			S	S	S	S	S	S	S	S	S	S	S	S	S		S	S	A	A	A	A			
UTILITIES AND WASTE-RELATED USES																									
Utility Service, Major	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§6.4.21 §6.4.17	
Electric or Gas Power Generation Facilities	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§6.4.21 §6.4.17	
Utility Substation	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Electrical or Telephone Switching Facility	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Sewage Collector or Trunk Lines	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Sewage Disposal Facilities	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.17	
Utility Pumping Station	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Water Mains	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Water or Sewage Treatment Facilities	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Water Storage Tank	S	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	§ 6.4.21	
Utility Service, Minor	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	A	§ 6.4.31	
Electric or Gas Power Distribution	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	A	§ 6.4.31	
Sewage Collection Service Line	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	A	§ 6.4.31	
Water Service Line	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	A	§ 6.4.31	
Waste-Related Uses																							S		
Hazardous Waste Treatment or Disposal																							S		
Nonhazardous Waste Treatment or Disposal																							S		

[redacted]

Administration
Collections
Disposal
Education
Engineering
Recycling
Resource Recovery

CHARLESTON COUNTY
SOUTH CAROLINA

Department of Solid Waste
County of Charleston
13 Romney Street
Charleston, SC 29403

Ph. (843) 720-7111
Fax (843) 720-7115

April 10, 2007

Ms. Celeste Duckett
Environmental Health Manager
Planning and Compliance Section
SCDHEC
2600 Bull Street
Columbia, SC 29201-1708

Re: Letter of Consistency – County of Charleston
Bees Ferry C&D and LCD Landfill

Dear Ms. Duckett:

The County of Charleston will be submitting a Permit Application for a lateral and vertical expansion of our existing facility. The County considers this facility and its operations to be consistent with its Solid Waste Management Plan.

The facility is located at 1344 Bees Ferry Road, Charleston, South Carolina. The longitude is W 80° 6' 22" and latitude is N 32° 49' 15".

Should you require any additional information, please contact me.

Sincerely,

Robert C. Lawing, P.E.
Solid Waste Engineer

Cc Gregg Varner
Scott Ribes
Philip Westmoreland

C&D PERMIT 0047

[redacted]

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

May 31, 2007

CERTIFIED MAIL 7006 0810 0003 6041 3542

Mr. Robert C. Lawing
Department of Solid Waste
County of Charleston
13 Romney Street
Charleston, SC 29403

RE: Preliminary Consistency Review

Site:	Bees Ferry C&D and LCD Landfill Part IV C&D Landfill
Location:	Lat 32° 49' 15." North and Long 80° 6' 22." West
Annual Tonnage Limit:	200,000 tons
County:	Charleston County
Plan Reviewed:	1994 Charleston County Solid Waste Management Plan

Dear Mr. Lawing:

On May 16, 2007, a consistency review was initiated to determine if the above referenced proposed facility is consistent with the county plan on file with the Department. **Staff has reviewed the 1994 Charleston County Solid Waste Management Plan and our preliminary finding is that the proposed vertical and lateral expansion and tonnage increase of the existing Bees Ferry C&D and LCD landfill (Part IV C&D Landfill) is neither limited nor prohibited by the 1994 Charleston County Solid Waste Management Plan nor the South Carolina State Solid Waste Management Plan.**

The Department will continue to move forward based on the preliminary finding. As a reminder, this is a preliminary finding and a final consistency determination must be made upon completion of the application process prior to issuance of a permit. In addition, before a permit is issued, a site must be determined to be consistent with local land-use, zoning, and other county requirements including solid waste ordinances. If applicable, these documents should be submitted to the Department for review.

If you have questions or concerns regarding this matter, or if we can be of assistance in any other way, please feel free to contact me [(803) 896-4221, whitejm@dhec.sc.gov] or Art Braswell [(803) 896-4202, braswead@dhec.sc.gov].

With kindest regards,

Jana M. White, Manager
Solid Waste Planning and Grants Section
Division of Mining and Solid Waste Management
Bureau of Land and Waste Management

JMW/jmw

cc: Mr. Keith Bustraan, Charleston County Administration, Lonnie Hamilton, III Public Services Building, 4045 Bridge View Drive, Suite B-238, N. Charleston, SC 29405-7464
Brian Kvam, P.G. Fuss & O'Neill, 1419 Richland St. Columbia, SC 29201
Ms. Joan Litton, DHEC Solid Waste Permitting
Mr. Van Keisler, DHEC Solid Waste Hydrogeology

C&D PERMIT 0048

[redacted]

Administration
Collections
Disposal
Education
Engineering
Recycling
Resource Recovery

CHARLESTON COUNTY
SOUTH CAROLINA

Department of Solid Waste
County of Charleston
13 Romney Street
Charleston, SC 29403

Ph. (843) 720-7111
Fax (843) 720-7115

May 16, 2007

Ms. Joan Litton
SCDHEC
Bureau of Land and Waste Management
Solid Waste Permitting Section
2600 Bull Street
Columbia, SC 29201-1708

Re: Bees Ferry C&D and LCD Landfill
Charleston County
Demonstration-of-Need

Dear Ms. Litton:

Charleston County will be submitting a Permit Application soon for a lateral and vertical expansion of our existing facility. This expansion is necessary to replace exhausted capacity of our current landfill. The site is located as follows:

Longitude: W 80° 6' 22"
Latitude: N 32° 49' 15"

In accordance with Regulation 61-107.17, Demonstration-of-Need, Charleston County is requesting that the disposal rate at the above referenced landfill be increased to 200,000 tons per year. In the past few years, Charleston County has disposed of large volumes of C&D waste in our municipal solid waste landfill. Now that we have opened and operate our new lined MSW landfill, we make every effort to limit that practice which results in more tonnage disposed in the C&D landfill. Also, the majority of compostable material that we receive is disposed of in the C&D landfill due to the limited capacity of our composting facility.

Please contact me should you require additional information.

Sincerely,

Robert C. Lawing, P.E.
Solid Waste Engineer

Cc Gregg Varner
Scott Ribes
Philip Westmoreland

C&D PERMIT 0049

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

May 25, 2007

CERTIFIED MAIL
7001 2510 0001 1592 9914

Mr. Robert C. Lawing, P.E., Solid Waste Engineer
Charleston County Department of Solid Waste
13 Romney St.
Charleston, SC 29403

RE: Demonstration of Need APPROVAL
Bees Ferry Road C&D Landfill Expansion
Facility ID No. 101001-1201
Maximum Disposal Rate of 200,000 tons/year
Charleston County

Dear Mr. Lawing:

This office is in receipt of your demonstration of need request submitted relative to the above-referenced site dated May 16, 2007. Staff have evaluated the information and determined that pursuant to the provisions of R.61-107.17, *Demonstration of Need*, the facility is entitled to replace exhausted capacity by expanding the size of the existing landfill both laterally and vertically.

Also contained in your letter is a request to increase the landfill's annual disposal limit from the currently permitted 182,000 tons/year to 200,000 tons/year. The Department will allow the C&D debris that was disposed of in the on-site MSW landfill (Facility ID No. 101001-1101) in Fiscal Year 2006, as well as the land-clearing debris that was processed at the on-site compost facility (Facility ID No. 101001-3001) in Fiscal Year 2006, to count toward the maximum annual disposal rate for the C&D landfill. At this time the Department may consider an annual disposal limit of up to 200,000 tons/year in its consistency determination for the proposed activity.

You are reminded that securing a site approval under the provisions of the Demonstration of Need regulation in no way supercedes zoning, consistency with local solid waste management plans or other considerations evaluated by the Department during the permitting process.

Also, please be aware that this approval may be terminated by the Department if any one of the following occurs: (A) one hundred twenty (120) days elapse from the date of receipt of this letter of approval without documented evidence of diligent pursuit of the appropriate solid waste permit being presented to the Department or (B) once a permit application has been received by the Department, that permit application is declared inactive or is denied by the Department's solid waste permitting staff or (C) the Department receives official and final notification that the site of the proposed facility does not meet proper zoning for the intended activity or (D) the Department determines that the proposed facility is not consistent with the host county or region solid waste management plan.

If you have any questions, please contact John McCain of my staff at (803) 896-4067.

Sincerely,

Joan F. Litton

Joan F. Litton, Manager
Solid Waste Permitting Section
Division of Mining and Solid Waste Management
Bureau of Land and Waste Management

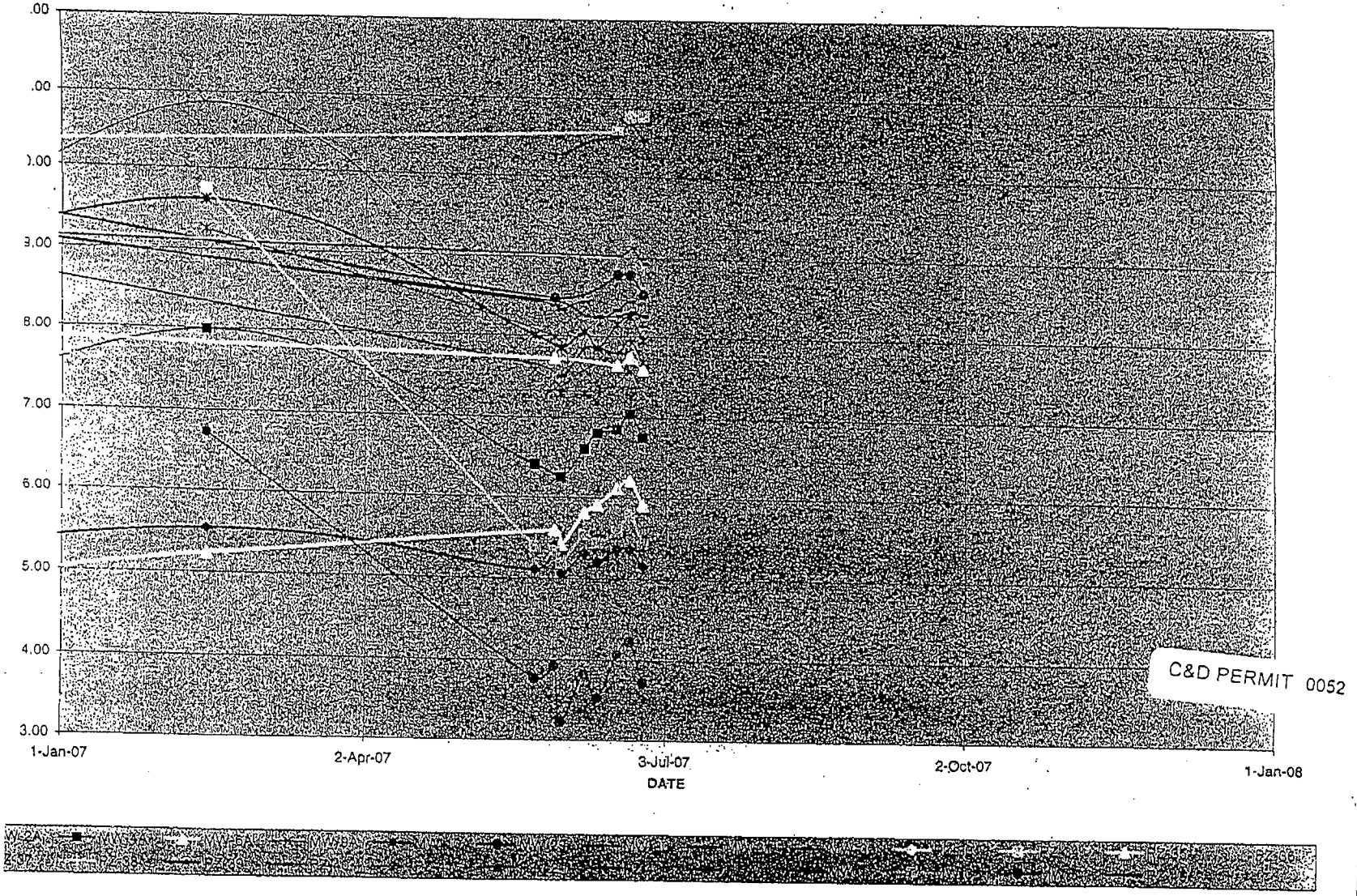
C&D PERMIT 0050

[redacted]

GROUND WATER

C&D PERMIT 0051

RECENT GROUNDWATER ELEVATION CHART

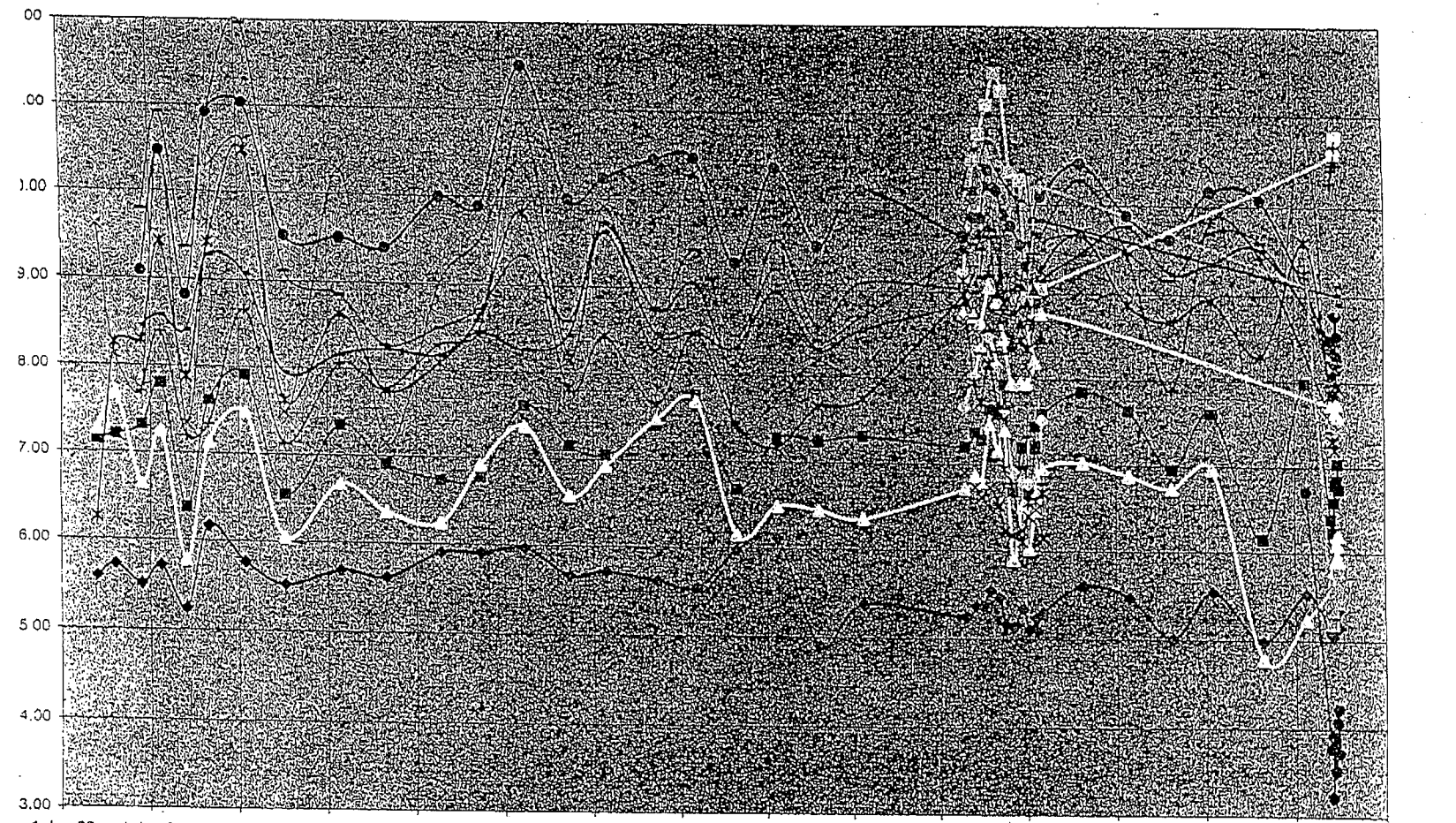


C&D PERMIT 0052

Page Form: SHGW Updated for C&D.xls

0218

HISTORICAL GROUNDWATER ELEVATIONS CHART



C&D PERMIT 0053

Base Form SHGW Updated for C&D.xls

0219

CHARLESTON COUNTY
SOUTH CAROLINA



Permit Drawings For

Bees Ferry Landfill

Construction, Demolition and Land-Clearing Debris Landfill

Permit Modification

Issued for SCDHEC Approval
July 2007

REVISED NOVEMBER 2007

Project No.
11613-51678-018

Charleston County, South Carolina

INDEX OF DRAWINGS

GENERAL
G-00 COVER
G-01 OVERALL SITE PLAN
G-02 BUFFERS
G-03 PERMITTED C&D LANDFILL
G-04 VICINITY MAP

GEOTECHNICAL
B-01 SEASONAL HIGH GROUNDWATER
B-02 HISTORICAL HIGH GROUNDWATER

CIVIL
C-01 EXISTING CONDITIONS
C-02 PROPOSED BASE GRADES
C-03 PROPOSED FINAL GRADES
C-04 CROSS SECTIONS (1 OF 2)
C-05 CROSS SECTIONS (2 OF 2)
C-06 FILL SEQUENCE
C-07 OPERATIONS GRID
C-08 DETAILS (1 OF 2)
C-09 DETAILS (2 OF 2)

HDR

HDR Engineering, Inc.
of the Carolinas

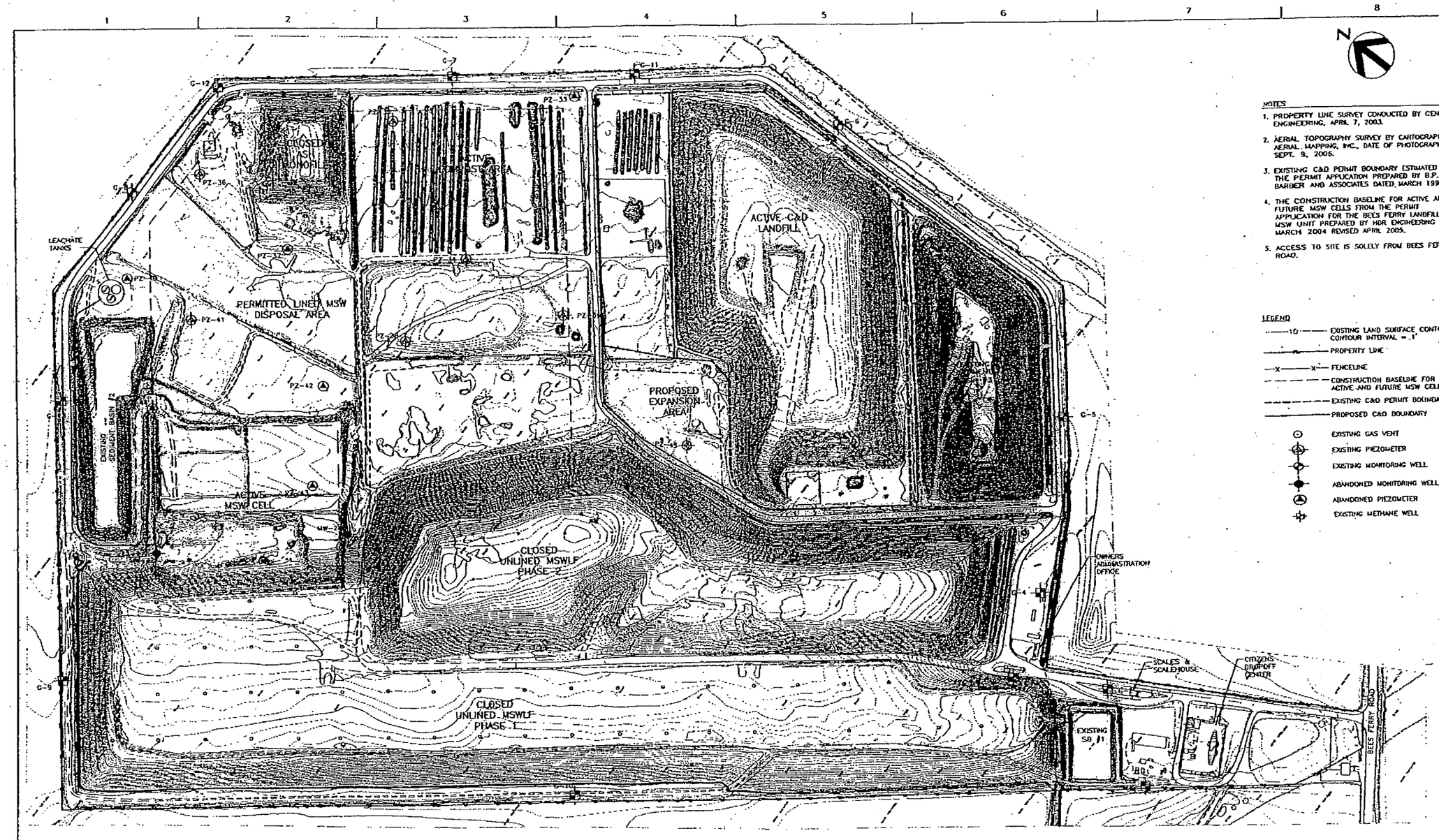
128 S Tryon Street, Suite 1406 | Charlotte, NC 28202

RECEIVED

NOV 8 2007

DIVISION OF MINING &
SOLID WASTE MANAGEMENT
BLWM

C&D PERMIT 0054



NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.
3. EXISTING C&D PERMIT BOUNDARY ESTIMATED FROM THE PERMIT APPLICATION PREPARED BY B.P. BARBER AND ASSOCIATES DATED MARCH 1997.
4. THE CONSTRUCTION BASELINE FOR ACTIVE AND FUTURE MSW CELLS FROM THE PERMIT APPLICATION FOR THE BEES FERRY LANDFILL LINED MSW UNIT PREPARED BY HDR ENGINEERING DATED MARCH 2004 REVISED APRIL 2005.
5. ACCESS TO SITE IS SOLELY FROM BEES FERRY ROAD.

LEGEND

- EXISTING LAND SURFACE CONTOUR — 10 — CONTOUR INTERVAL = 1'
- PROPERTY LINE
- FENCELINE
- CONSTRUCTION BASELINE FOR ACTIVE AND FUTURE MSW CELLS
- EXISTING C&D PERMIT BOUNDARY
- PROPOSED C&D BOUNDARY
- EXISTING GAS VENT
- EXISTING PIEZOMETER
- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- ABANDONED PIEZOMETER
- EXISTING METHANE WELL

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR

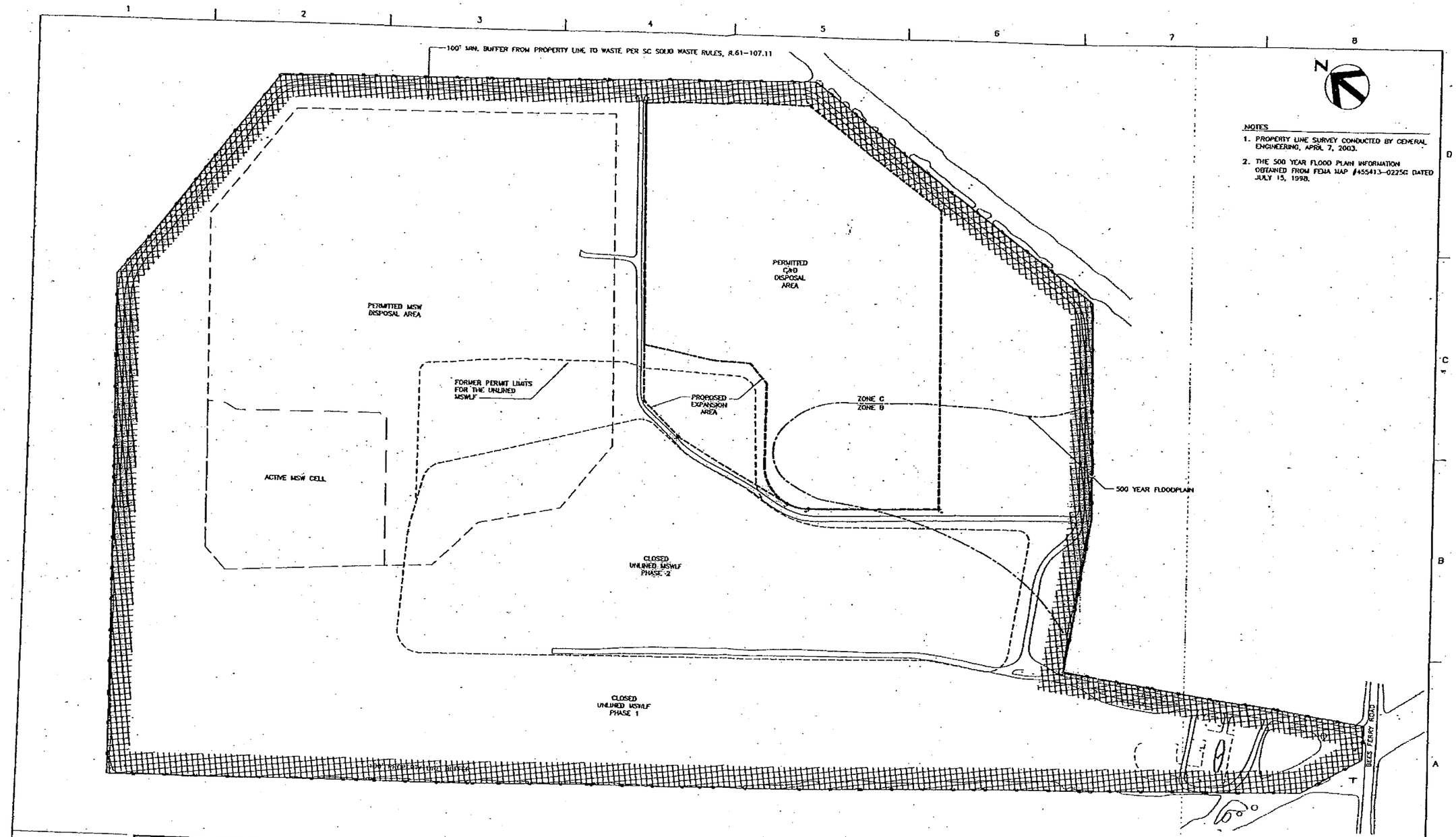
ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDEHC APPROVAL

PROJECT MANAGER	P.A.WESTMORELAND, P.E.
DESIGN ENG.	G.M.WILLIAMS, E.I.
Q.C.	E.A.WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

OVERALL SITE PLAN
C&D PERMIT 0055

FILENAME	00G-01
SCALE	1"=200'
SHEET	G-01



NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY CEMERAL ENGINEERING, APRIL 7, 2003.
2. THE 500 YEAR FLOOD PLAIN INFORMATION OBTAINED FROM FEMA MAP #455413-0225G DATED JULY 15, 1998.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR

HDR Engineering, Inc. of the Carolinas

ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A.WESTMORELAND, P.E.
DESIGN ENG.	G.M.WILLIAMS, E.I.
Q.C.	E.A.WRIGHT, P.E.
CADD	
PROJECT NUMBER	00000000051678

PAUL A. WESTMORELAND No. 21054 REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA

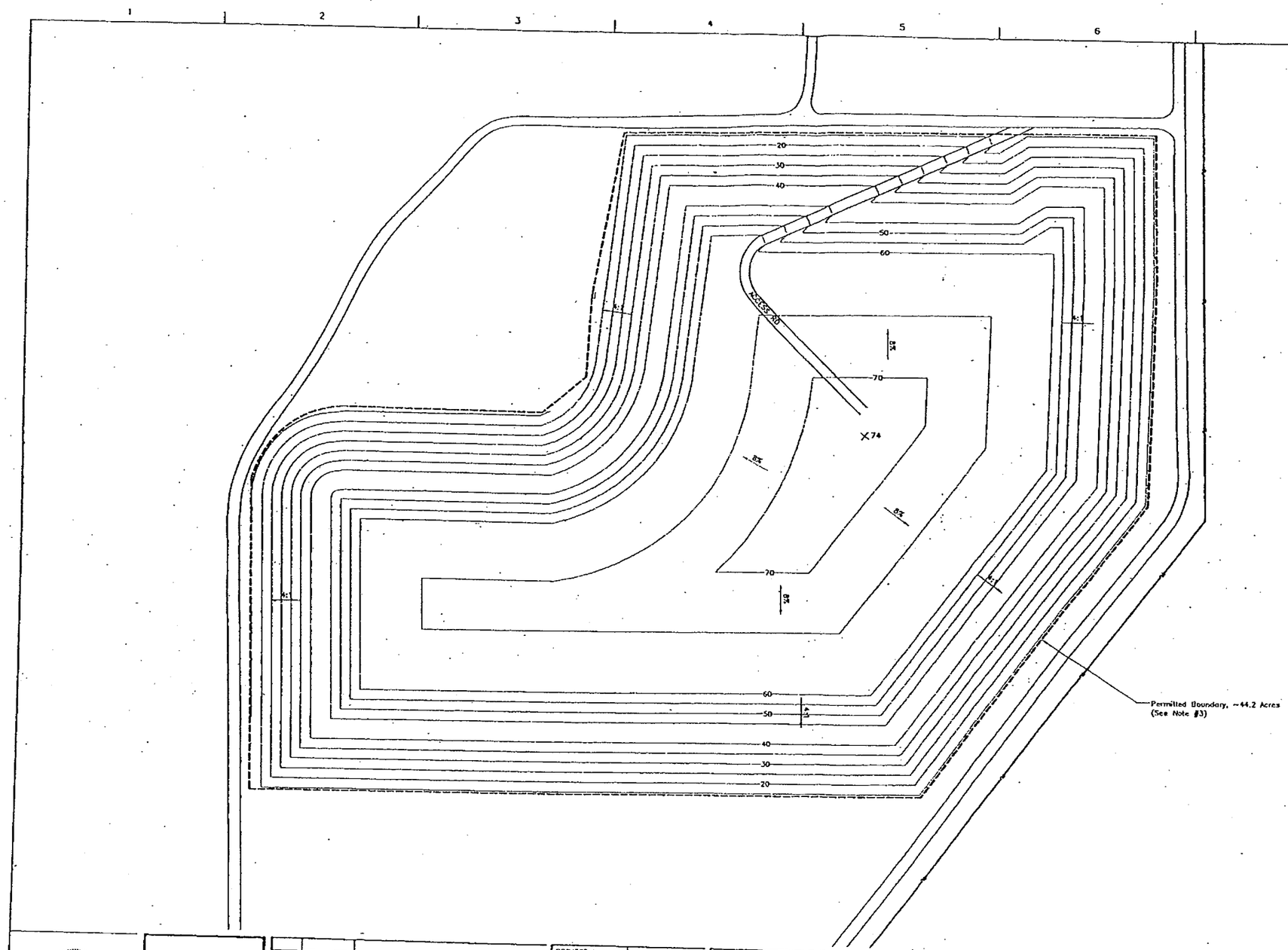
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

BUFFERS
C&D PERMIT 0056

0 1" 2"

FILENAME	002-02
SCALE	1"=200'
SHEET	G-02

0222



N

SCALE IN FEET

−100 −50 0 100 200

NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.
3. PERMITTED BOUNDARY AND PROPOSED FINAL GRADING ESTIMATED FROM THE PERMIT APPLICATION PREPARED BY B.P. BARBER AND ASSOCIATES DATED MARCH 1997.
4. SIDESLOPES ARE 4:1.
5. A STORMWATER BENCH IS SHOWN AT ELEVATION 40.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR

HDR Engineering, Inc. of the Carolinas

ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

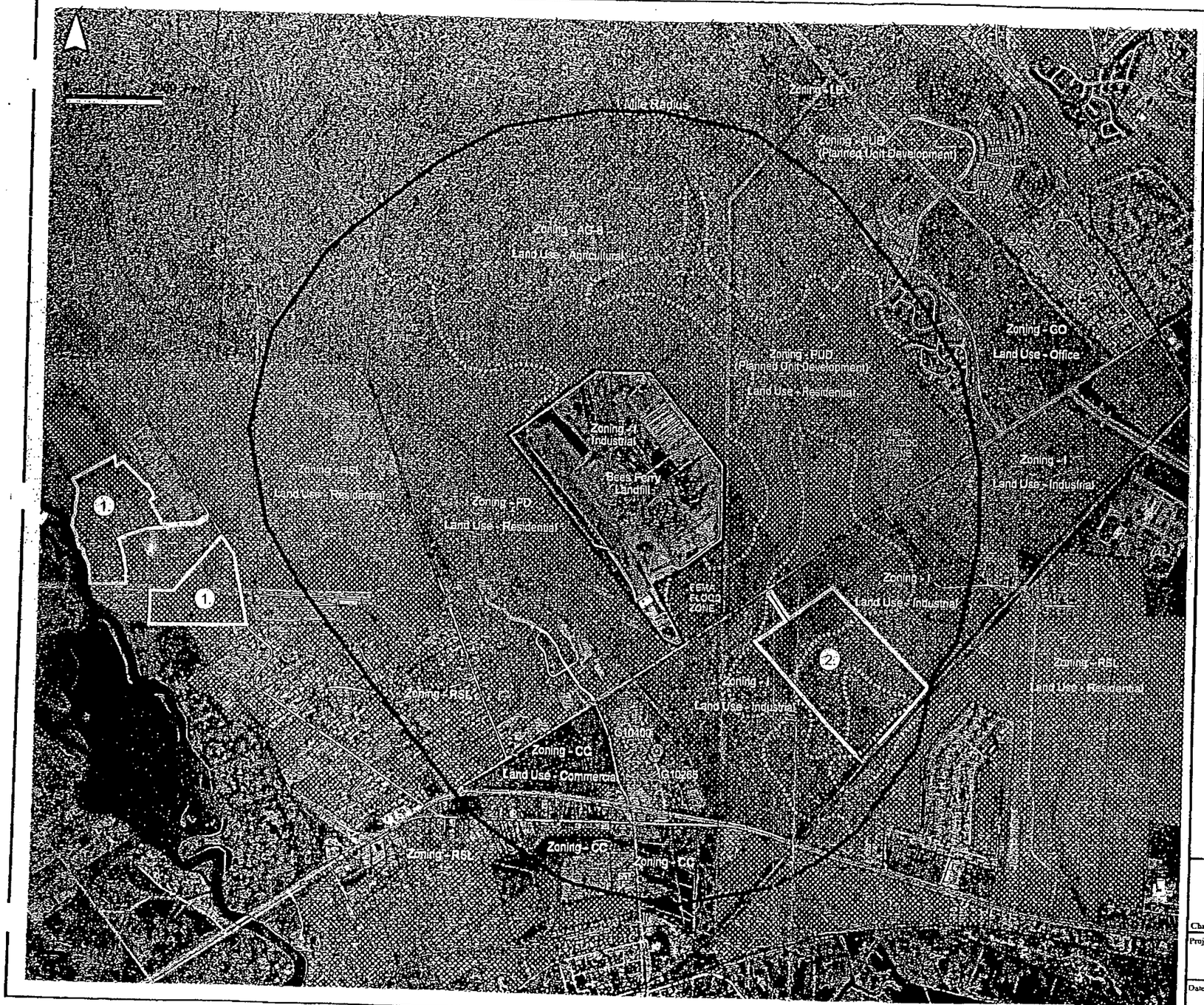
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County **South Carolina**

PERMITTED C&D LANDFILL

C&D PERMIT 0057

0 1" 2"

FILENAME	00G-03
SCALE	1"=100'
SHEET	G-03



Legend

- 1-Mile Radius from Property Line
- Streams / Rivers
- Railroad
- Property Line
- Church / Cemetery
- Public Water Supply
- FEMA Floodplain (approximate)
- Residential Structures

Land Use

- Agricultural
- Commercial
- Industrial
- Office
- Planned Development
- Residential

Sources: County of Charleston GIS Department. South Carolina Department of Health and Environmental Control (SC DHEC). South Carolina State Historic Preservation Office (SHPO). South Carolina Institute of Archaeology and Anthropology (SCIAA). Federal Emergency Management Agency (FEMA).

Aerial Photography: Current as of 2001, County of Charleston GIS Department.

Planimetric Data (Road Centerlines, Parcel Boundaries, Building Footprints, Zoning, Land Use, Hydrography): Current as of November 2003. County of Charleston, South Carolina.

Water Wells: According to SCDHEC records, there are no registered private water wells located within the 1-mile radius of the landfill property boundary as of May 2003. According to SCDHEC records, on December 2003 there are two public water supply wells (G10265 and G10400) located approximately 5,700 feet south of the proposed lined MSW unit, they are within a separate watershed of the uppermost aquifer and therefore outside of the buffer zone requirement (R.61-107.258.18).

Watershed: Project site is located in the Stono River Watershed 03050202-050.

Floodplain Approximation: Digitized from FEMA Flood Insurance Rate Map: 455413-0225, 455413-0286, dated July 1988. Boundary area represents the limits of the 500-year floodplain.

Historic Sites: On January 22, 2004 HDR reviewed available records housed at the SHPO and the SCIAA. Based on that visit, HDR determined that there are no historic or archaeological sites located within the 1-mile radius around the landfill facility.

(1) Archaeological survey conducted (2002) by SCIAA found 4 archaeological sites, none eligible for National Register of Historic Places.

(2) Archaeological survey conducted (1996) by SCIAA found 0 archaeological sites.

C&D PERMIT 0058

Vicinity Map

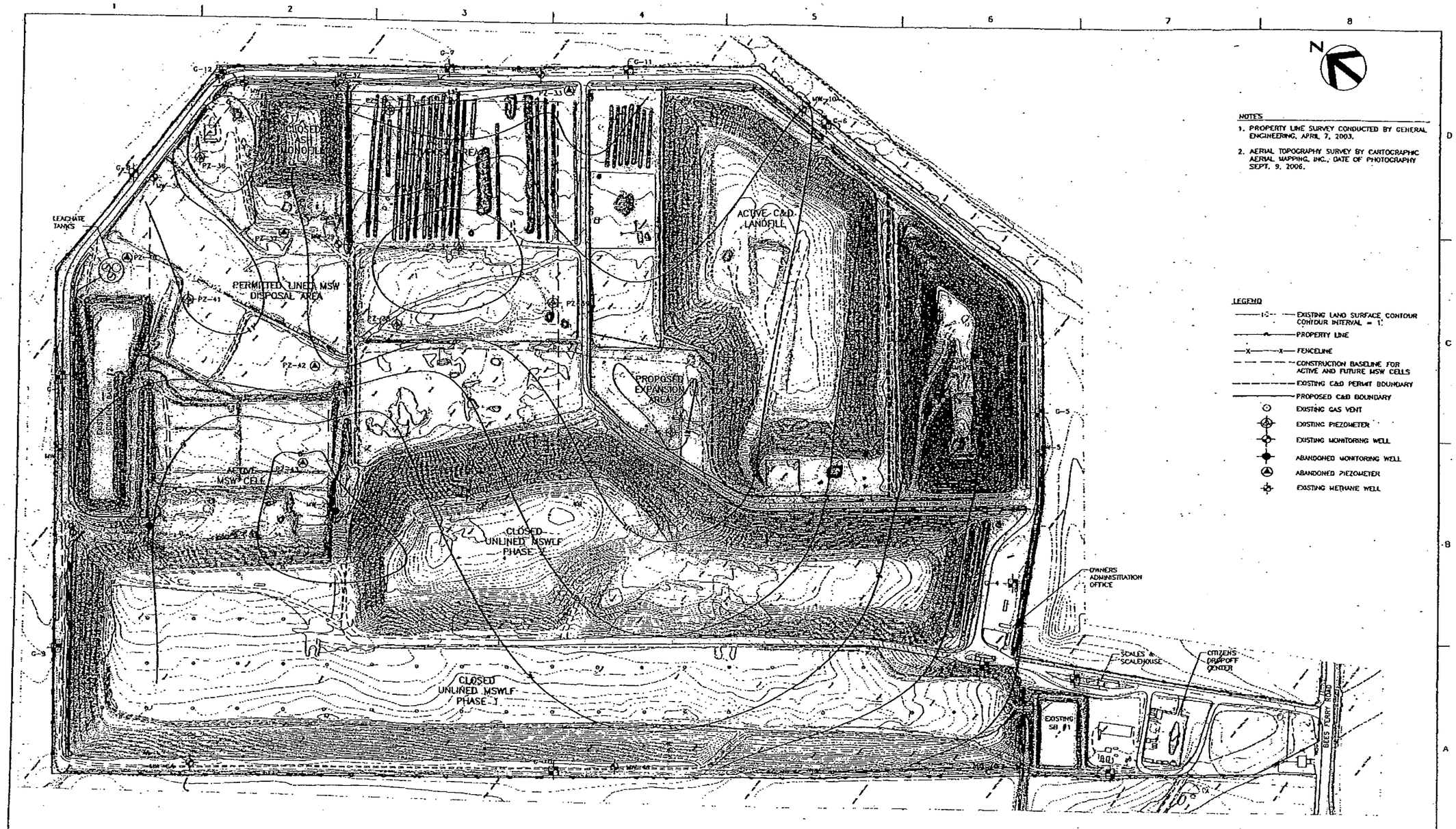
Charleston County — South Carolina

Sheet: G-04

Project: **Bees Ferry Landfill**
11613 - 018 - 018

Date: **March 2004**

HDR Engineering, Inc. of the Carolinas



NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.

LEGEND

- EXISTING LAND SURFACE CONTOUR CONTOUR INTERVAL = 1'
- PROPERTY LINE
- FENCELINE
- CONSTRUCTION BASELINE FOR ACTIVE AND FUTURE MSW CELLS
- EXISTING C&D PERMIT BOUNDARY
- PROPOSED C&D BOUNDARY
- EXISTING GAS VENT
- EXISTING PIEZOMETER
- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- ABANDONED PIEZOMETER
- EXISTING METHANE WELL

HDR Engineering, Inc. of the Carolinas

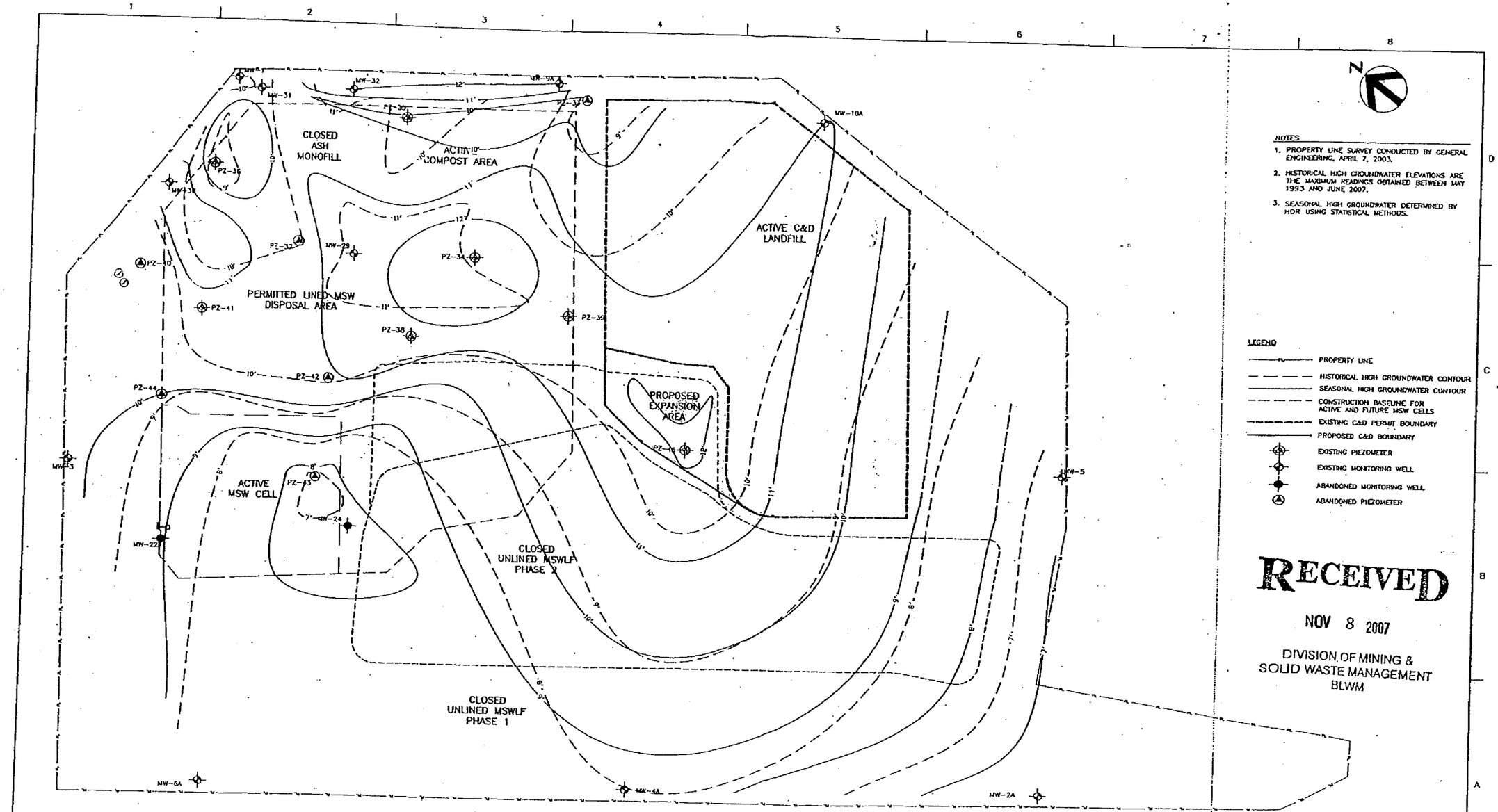
ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDHC APPROVAL

PROJECT MANAGER	P.A.WESTMORELAND, P.E.
DESIGN ENG.	C.M.WILLIAMS, E.I.
Q.C.	E.A.WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

SEASONAL HIGH GROUNDWATER
C&D PERMIT 0059

FILENAME	008-01
SCALE	1"=200'
SHEET	B-01



N

NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. HISTORICAL HIGH GROUNDWATER ELEVATIONS ARE THE MAXIMUM READINGS OBTAINED BETWEEN MAY 1993 AND JUNE 2007.
3. SEASONAL HIGH GROUNDWATER DETERMINED BY HDR USING STATISTICAL METHODS.

LEGEND

- PROPERTY LINE
- HISTORICAL HIGH GROUNDWATER CONTOUR
- SEASONAL HIGH GROUNDWATER CONTOUR
- CONSTRUCTION BASELINE FOR ACTIVE AND FUTURE MSW CELLS
- EXISTING C&D PERMIT BOUNDARY
- PROPOSED C&D BOUNDARY
- EXISTING PIEZOMETER
- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL
- ABANDONED PIEZOMETER

RECEIVED
NOV 8 2007
DIVISION OF MINING & SOLID WASTE MANAGEMENT
BLWM

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — HDR ENGINEERING, INC. OF THE CAROLINAS #3014

HDR Engineering, Inc. of the Carolinas
730 S Tryon Street, Suite 1400 | Charlotte, NC 28202

ISSUE	DATE	DESCRIPTION
A	11/07	ISSUED FOR SCDEHC APPROVAL

PROJECT MANAGER	P.A.WESTMORELAND, P.E.
DESIGN ENG.	G.M.WILLIAMS, E.I.
Q.C.	C.A.WRIGHT, P.E.
CADD	
PROJECT NUMBER	00000000051678

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER — PHILIP A. WESTMORELAND — No. 17594

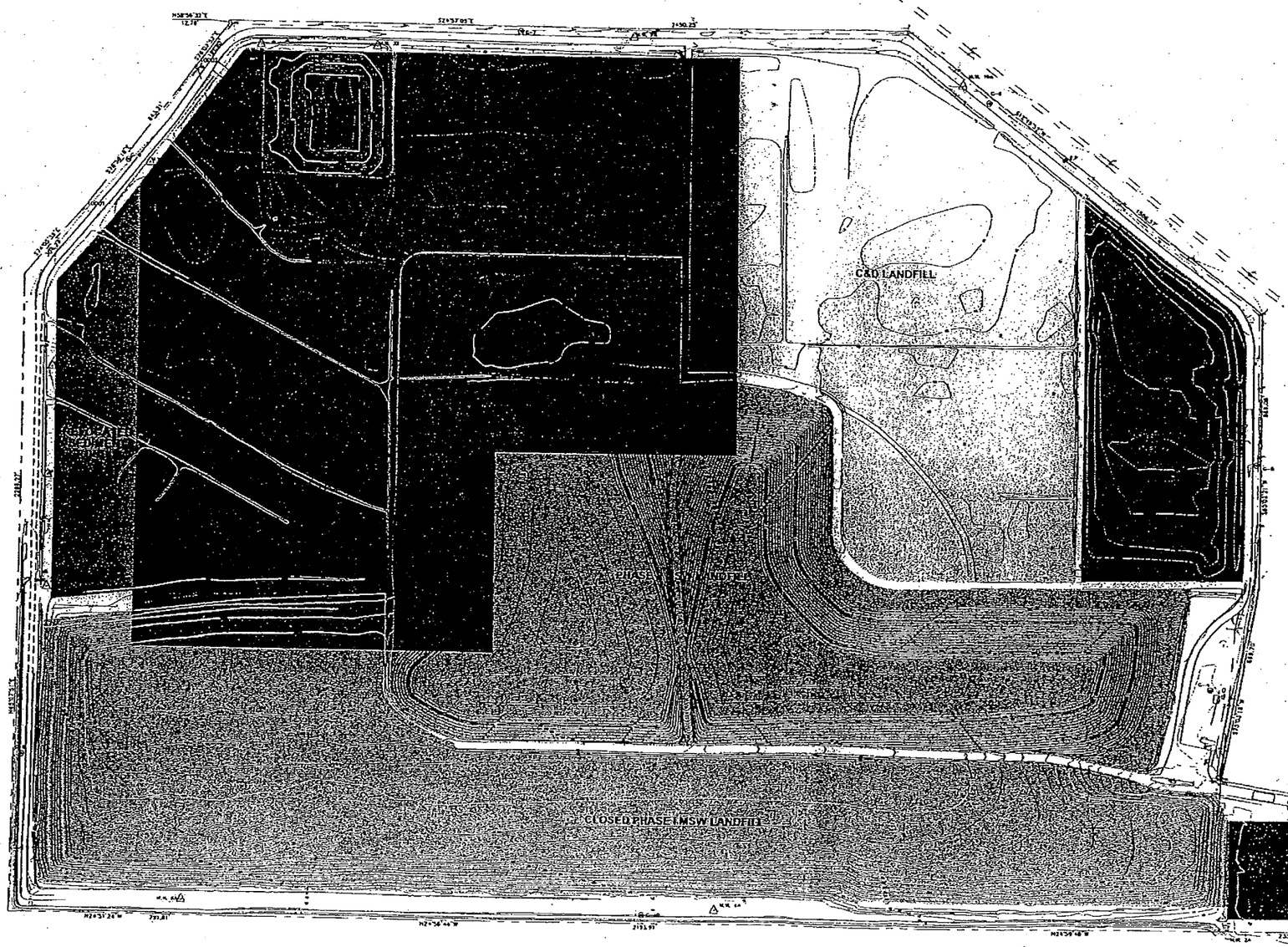
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

HISTORICAL HIGH GROUNDWATER
C&D PERMIT 0060

0 1" 2"

FILENAME	008-02.dwg
SCALE	1"=200'
SHEET	B-02

0226



N

SCALE IN FEET

-200 -100 0 200 400

NOTES

1. BOUNDARY SURVEY CONDUCTED BY SUR-TECH, INC. OCT. 1984.
2. TOPOGRAPHIC SURVEY CONDUCTED BY B.P. BARBER AND ASSOCIATES, INC. ON NOV. 15, 1996.

Description	Date	Drawn	Check	Proj. Engr.	Proj. Mgr.
FOR REVIEW	9/02				

HDR

HDR Engineering Inc. of the Carolinas

Suite 1400
128 S. Tryon Street
Charlotte, NC 28202-5001
(704) 338-6700

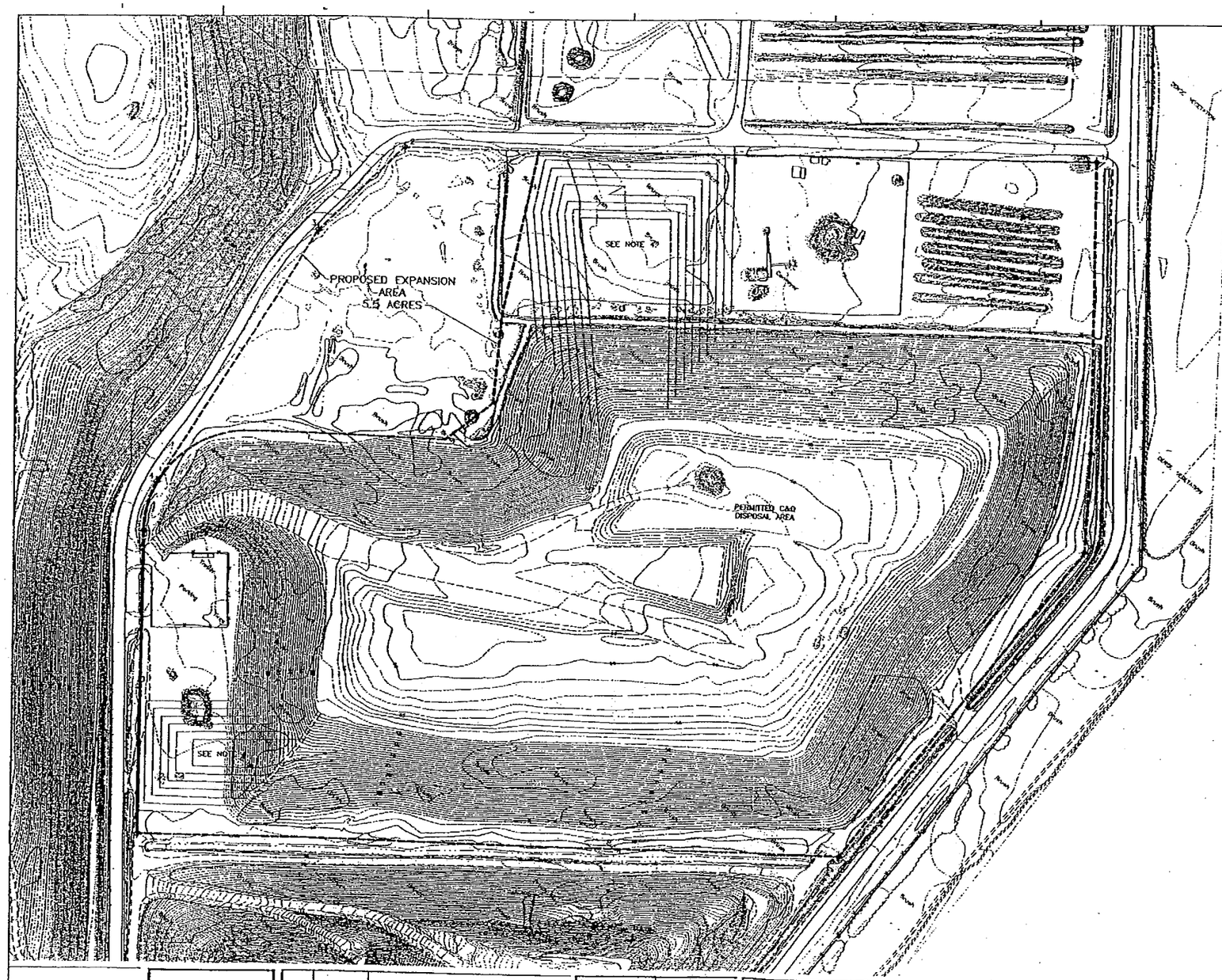
Project Manager: J. READLING, P.E.
Designed
Drawn
Checked
Drawn

BEES FERRY LANDFILL

POTENTIAL EXPANSION AREA

C&D PERMIT 0061

Date: SEPT. 2002
Project No.: 11613-015-018
Drawing No.: 2



N

SCALE IN FEET

-100 -50 0 100 200

NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.
3. THE PERMITTED BOUNDARY FOR THE C&D AREA WERE ESTIMATED FROM THE PERMIT APPLICATION PREPARED BY B.P. BARBER AND ASSOCIATES, INC. MARCH 1997. PERMITTED BOUNDARY IS APPROXIMATED FROM THE PERMIT.
4. THIS AREA HAS BEEN FILLED TO THE APPROXIMATE GRADES SINCE THE SEPT. 9, 2006 AERIAL TOPOGRAPHY.

LEGEND

——10——EXISTING LAND SURFACE CONTOUR CONTOUR INTERVAL = 1'

——————EXISTING C&D PERMIT BOUNDARY

——————PROPOSED C&D BOUNDARY

SOUTH CAROLINA HDR ENGINEERING, INC. OF THE CAROLINAS NO. 0018 CERTIFICATE OF AUTHORIZATION

HDR

HDR Engineering, Inc. of the Carolinas

ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
D.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	00000000051678

SOUTH CAROLINA No. 21554 P.A. WESTMORELAND

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County — South Carolina

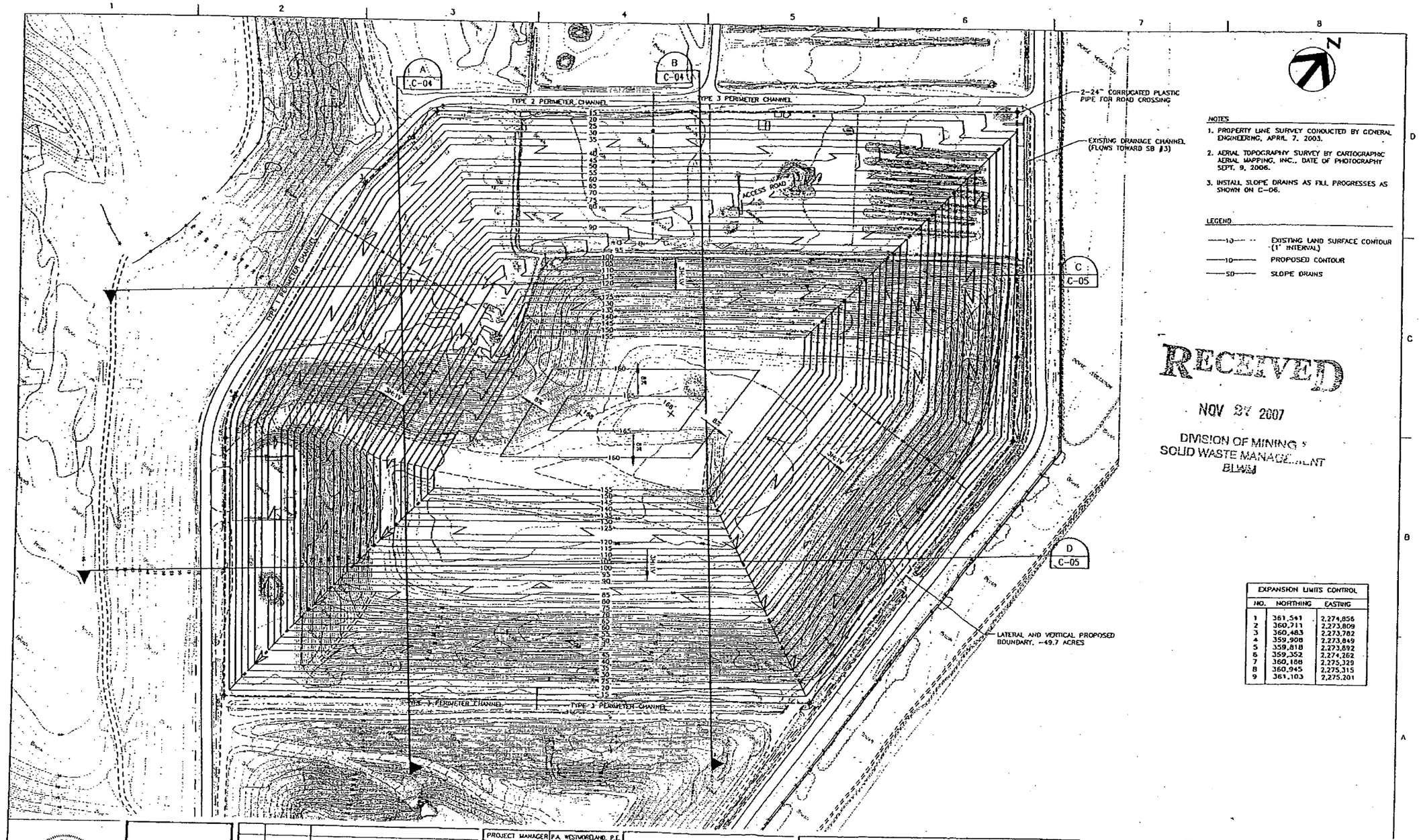
EXISTING CONDITIONS

C&D PERMIT 0062

0 1" 2"

FILENAME	00C-01
SCALE	1"=100'
SHEET	C-01


Brush
Brush
Brush



NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.
3. INSTALL SLOPE DRAINS AS FILL PROGRESSES AS SHOWN ON C-06.

LEGEND

—10—	EXISTING LAND SURFACE CONTOUR (1' INTERVAL)
—10—	PROPOSED CONTOUR
—SD—	SLOPE DRAINS

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EXPANSION LIMITS CONTROL		
NO.	NORTHING	EASTING
1	361,541	2,274,856
2	360,711	2,273,809
3	360,483	2,273,782
4	359,908	2,273,849
5	359,818	2,273,892
6	359,352	2,274,262
7	360,188	2,275,329
8	360,945	2,275,315
9	361,103	2,275,201

ISSUE	DATE	DESCRIPTION
B	11/07	REVISED PER DHEC COMMENTS
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
O.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	0000000000051678

HDR Engineering, Inc. of the Carolinas

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOR ENGINEERING BY HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0910

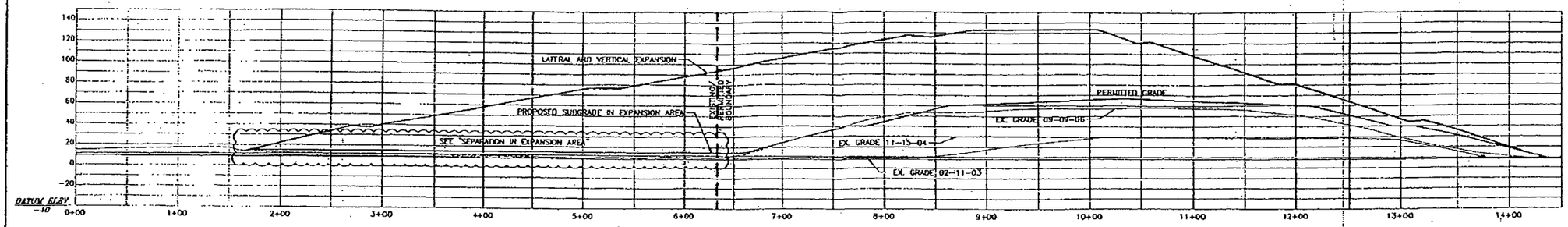
SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 21161 PHILIP A. WESTMORELAND

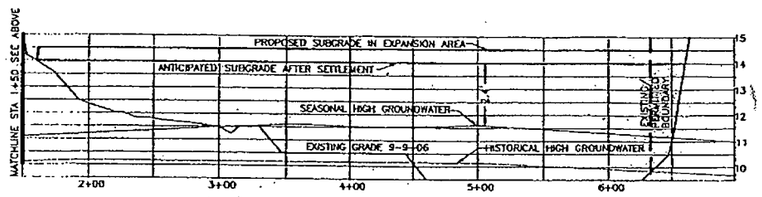
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

PROPOSED FINAL GRADES

C&D PERMIT 0064

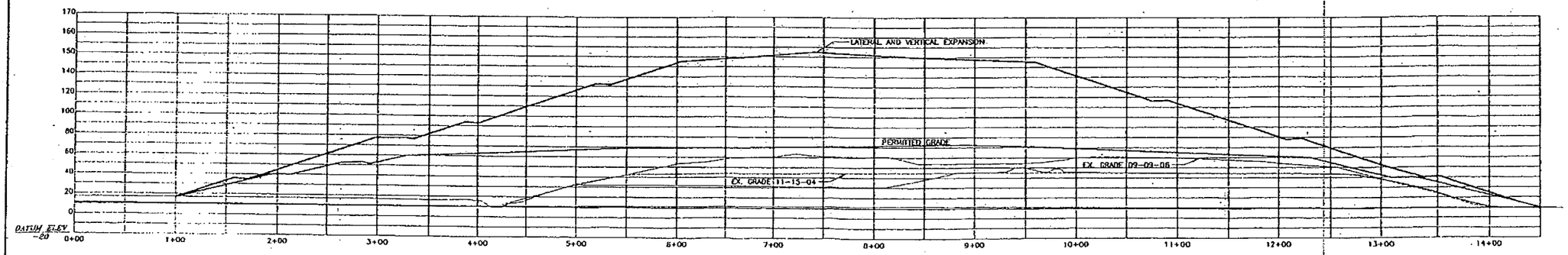
FILENAME	00C-03.dwg
SCALE	1"=100'
SHEET	C-03





SEPARATION IN EXPANSION AREA
H:1"=50' V:1"=2.5'

CROSS SECTION A
AS SHOWN
A
CD-3



CROSS SECTION B
H:1"=50' V:1"=50'
B
CD-3

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Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

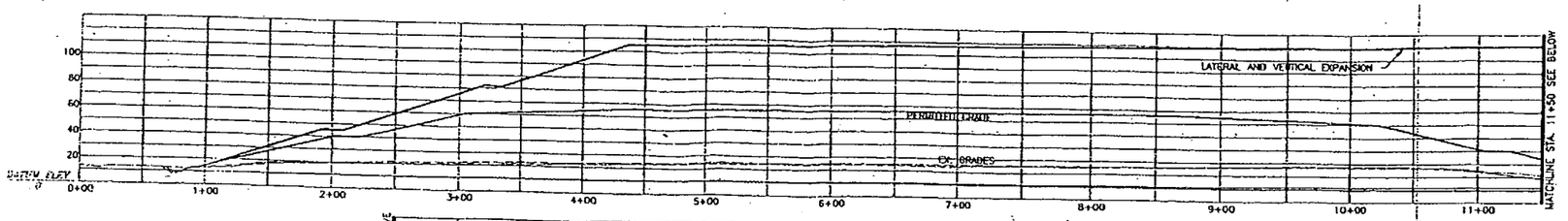
HDR Engineering, Inc. of the Carolinas

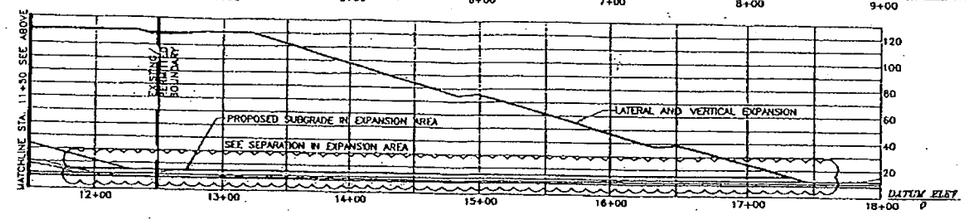
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

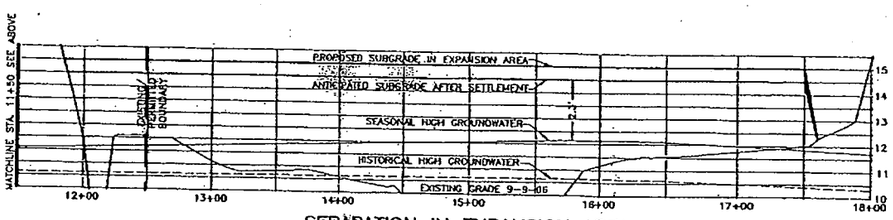
CROSS SECTIONS (1 OF 2')
C&D PERMIT 0065

0 1" 2"

FILENAME	DOC-04.dwg	SHEET	C-04
SCALE	AS SHOWN		

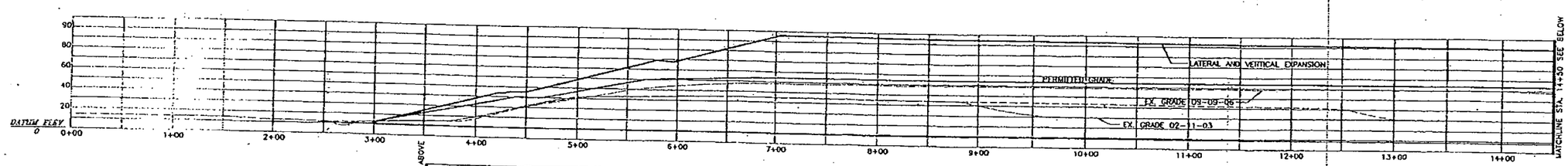


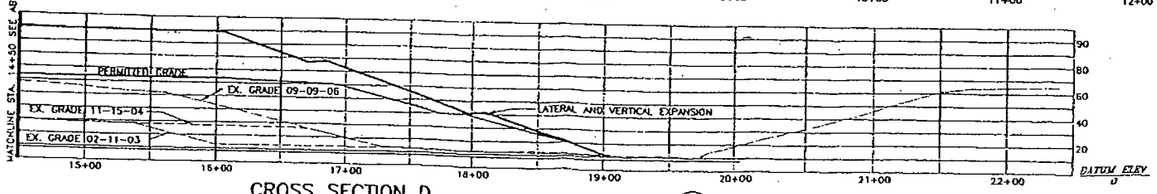




SEPARATION IN EXPANSION AREA
H:1"=50' V:1"=2.5'

CROSS SECTION C
H:1"=50' V:1"=50'
C
C-03





CROSS SECTION D
H:1"=50' V:1"=50'
D
C-03

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR Engineering, Inc. of the Carolinas

ISSUE	DATE	DESCRIPTION
B	11/07	REVISED PER SCDEHC COMMENTS
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	C.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification

Charleston County South Carolina

CROSS SECTIONS
(2 OF 2)

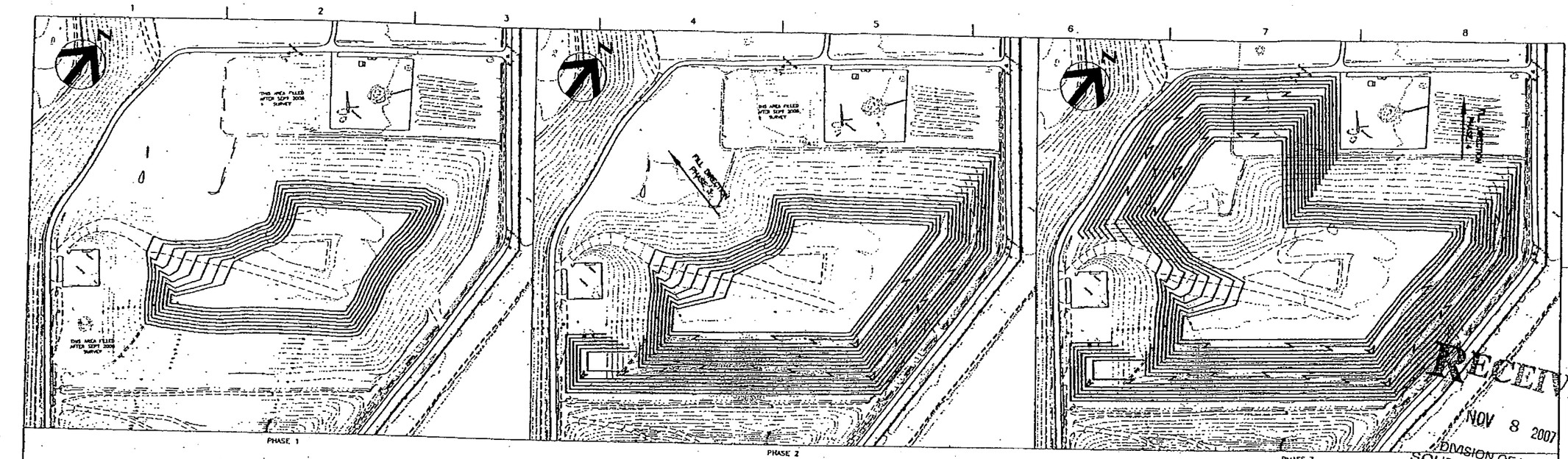
C&D PERMIT 0066

0 1" 2"

FILENAME 00C-05.dwg
SCALE AS SHOWN

SHEET
C-05

0232



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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR

ISSUE	DATE	DESCRIPTION
B	11/07	REVISED PER DHEC COMMENTS
A	07/07	ISSUED FOR DHEC APPROVAL

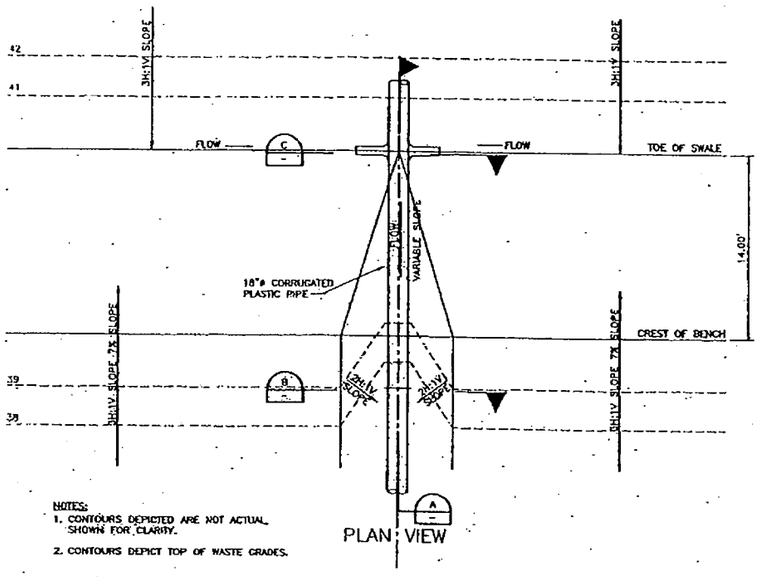
PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
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Charleston County South Carolina

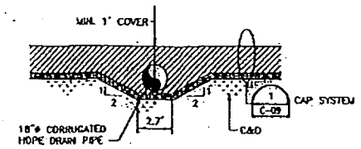
FILL SEQUENCE C&D PERMIT 0067

FILENAME	00C-06.dwg
SCALE	1"=200'
SHEET	C-06

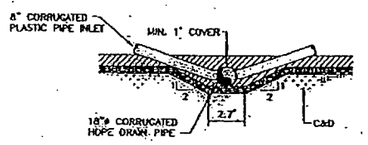


NOTES:
1. CONTOURS DEPICTED ARE NOT ACTUAL, SHOWN FOR CLARITY.
2. CONTOURS DEPICT TOP OF WASTE GRADES.

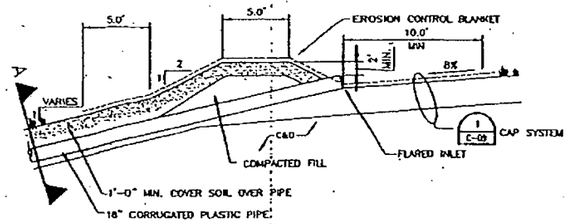
SLOPE DRAIN (PLAN VIEW) 1
1"=5'



SLOPE DRAIN WITHOUT INLET CONNECTION B
1"=5'

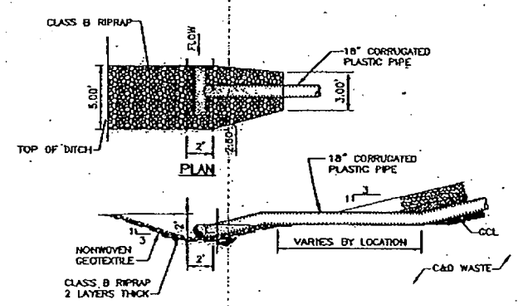


SLOPE DRAIN WITH INLET CONNECTION C
1"=5'



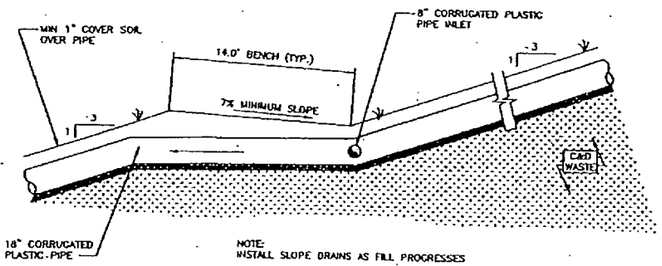
NOTES:
1. POSITION OF THE BERM ON NEAR THE BREAK BETWEEN THE 8% SLOPE AND THE 3:1 SLOPE.
2. THE SLOPE SHOULD PROVIDE A MINIMUM 1% SLOPE TOWARD THE SLOPE DRAINS.
3. LOCATION OF THE BERM AND SLOPE DRAIN PIPE TO BE VERIFIED WITH THE ENGINEER PRIOR TO INSTALLATION.

SLOPE DRAIN INLET 2
NTS C-02



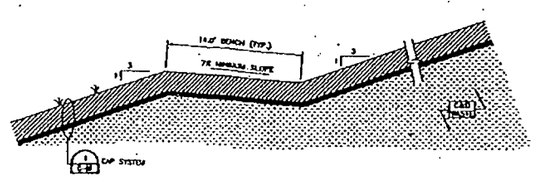
NOTES:
1. DIMENSIONS ARE MEASURED FROM TOP OF CHANNEL LINING.

SLOPE DRAIN OUTLET 3
NTS



NOTE:
INSTALL SLOPE DRAINS AS FILL PROGRESSES

BENCH WITH SLOPE DRAIN A
NTS



BENCH WITHOUT SLOPE DRAIN B
1"=5'

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

HDR

ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR DHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
C&DD	
PROJECT NUMBER	000000000051678

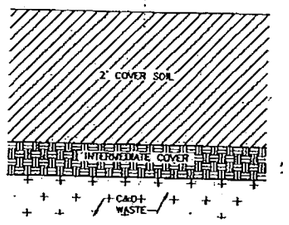
Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

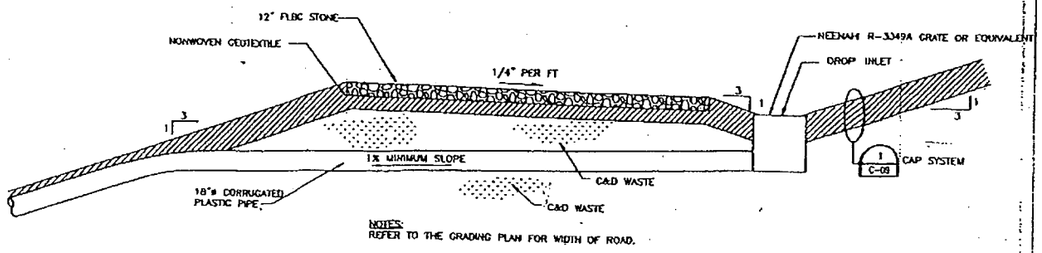
DETAILS (1 of 2)
C&D PERMIT 0069

0 1" 2"

FILENAME	00C-08
SCALE	AS SHOWN
SHEET	C-08

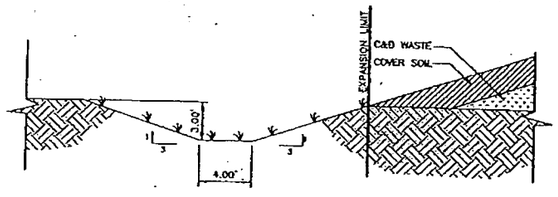
0234



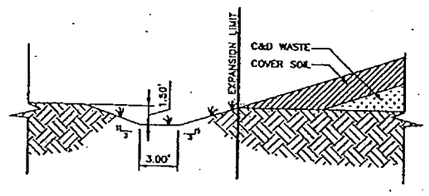


NOTES:
REFER TO THE GRADING PLAN FOR WIDTH OF ROAD.

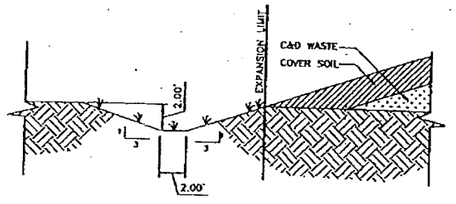
CAP SYSTEM
1"=1' — 1 / C-03



ACCESS ROAD
1"= 5' — 2



PERIMETER CHANNEL (TYPE 1)
1"=5' — C-03



PERIMETER CHANNEL (TYPE 2)
1"=5' — C-03

PERIMETER CHANNEL (TYPE 3)
1"=5' — C-03

SEEDING SPECIFICATIONS:
SEEDING IS A PERFORMANCE BASED CONSTRUCTION ACTIVITY

1. TEST SOIL TO DETERMINE NUTRIENT CONTENT.
2. LOOSEN SURFACE TO MINIMUM DEPTH OF FOUR (4) INCHES.
3. INCORPORATE NEEDED NUTRIENTS AS DETERMINED FROM SOIL TEST INTO SOIL.
4. PERMANENT SEEDING:
   1. SPRING/SUMMER (MARCH 1–AUGUST 14):
      A. COMMON BERMUDA (HULLED): 90 LBS/AC.
      B. BROWN TOP MILLET: 50 LBS/AC.
      C. SERICEA LESPEDEZA (HULLED): 50 LBS/AC.
   2. FALL/WINTER (AUGUST 15–FEBRUARY 28):
      A. COMMON BERMUDA (UNHULLED): 100 LBS/AC.
      B. SERICEA LESPEDEZA (UNHULLED): 80 LBS/AC.
      C. WINTER RYE: 70 LBS/AC.
5. TEMPORARY SEEDING:
   1. SPRING/SUMMER (APRIL 1–AUGUST 15):
      A. ANNUAL SUDAN GRASS: 40 LBS/AC.
      B. BROWN TOP MILLET: 50 LBS/AC.
   2. FALL/WINTER (AUGUST 15–MARCH 31):
      A. WINTER RYE: 224 LBS/AC.
6. CULTIPACK SEEDED AREAS.
7. GRADE SEEDED AREAS TO SMOOTH, EVEN SURFACE WITH, LOOSE UNIFORMLY FINE TEXTURE
8. IMMEDIATELY PROTECT SEEDED AREAS BY ONE OF THE FOLLOWING:
   1. MULCH WITH WHEAT STRAW @ 3,000 LBS/AC SECURED WITH EMULSION OR NETTING.
   2. EROSION CONTROL BLANKET
9. PROVIDE SUFFICIENT WATER UNTIL GRASS IS ESTABLISHED.
10. RE-SEED BARE AREAS USING SAME METHODS.

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DIVISION OF MINING & SOLID WASTE MANAGEMENT
BLWM

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DESIGN ENG.	G.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

Bees Ferry Landfill
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Permit Modification
Charleston County South Carolina

DETAILS (2 OF 2)
C&D PERMIT 0070

FILENAME	00C-09.dwg
SCALE	AS SHOWN
SHEET	C-09

Seasonal High Groundwater Determination

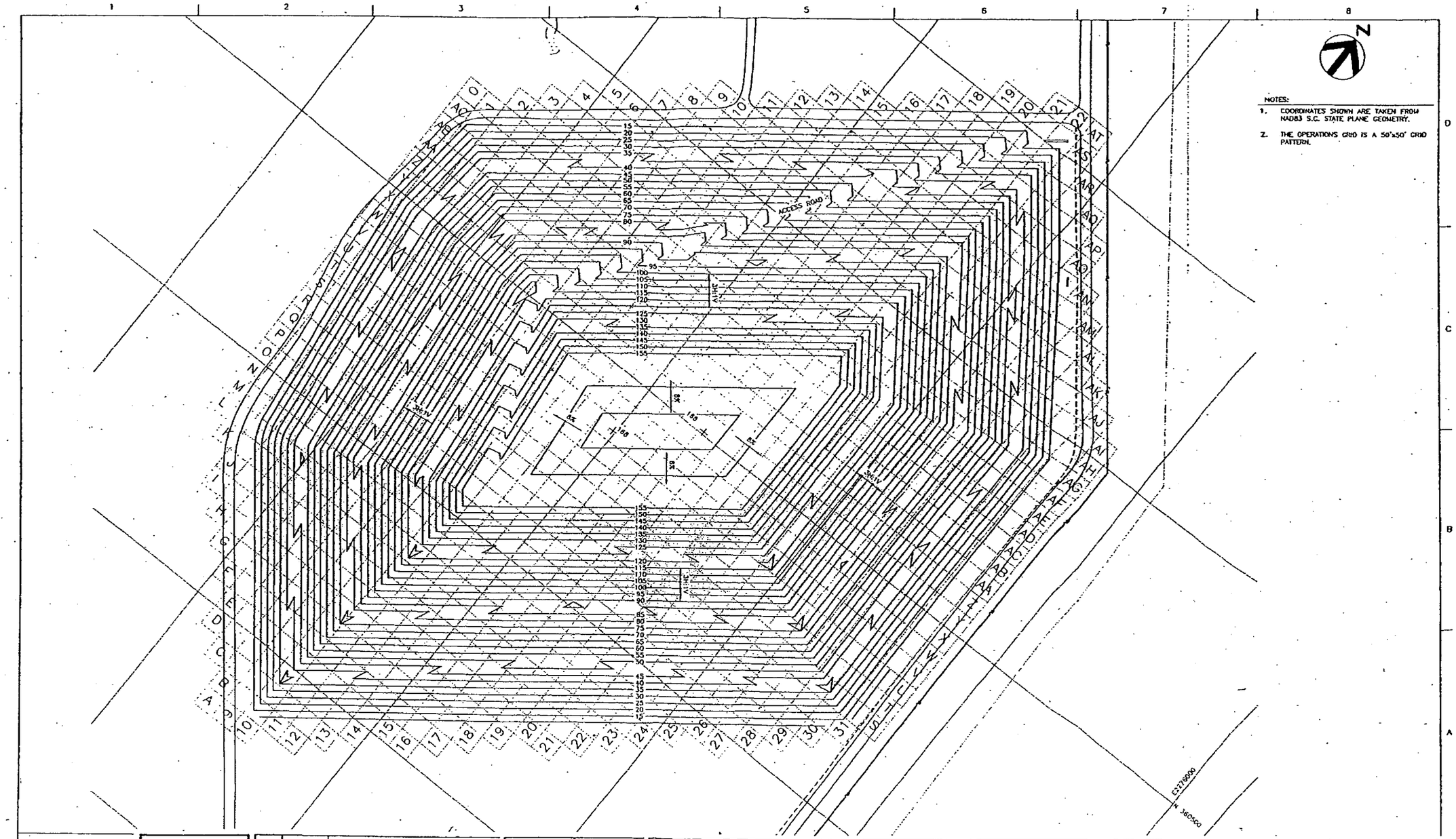
1. Determine Max, Min, Mean and Std Dev for each well (columns E, F, H & L)
2. The means for the overall data set are consistent with the means for the two period subsets (columns H, M, & R)
3. The std. deviations are generally higher for the recently installed wells (except PZ-45) than for the long term wells.
4. The range (Min-Max) for the newer wells (except PZ-45) are consistent with the older wells
5. Changes to previous SHGW Analysis
   - A. When HDR analyzed the SHGW for the lined MSW unit the PZ well std dev. were increased by .15
   - B. The additional data for obtained from the existing PZ wells shows that the std dev trended closer to the mean of std dev.
   - C. Therefore, uncorrected statistics are used for this SHGW analysis except for PZ-43 which had the lowest std dev of the group.
   - D. While cell 1 of the MSWLF has been constructed over PZ-43, the correction factor of .15 is applied to it's overall std dev. (column I)
6. Therefore, it appears that only one well (PZ-45) needs a new correction factor applied.
   - A. As the std dev. For PZ-45 is similar to the median std dev. for the second period.
   - B. PZ-45's std dev is corrected by the ratio of the median std dev. for the overall data compared to that of the second period.
7. Add 3 standard deviations (confidence interval = 99.865%) to the mean for each well (column G)
8. In all but 1 case (MW-32) the mean plus 3 std dev(column G) is greater than any observed well reading (shown in column E)
9. In all cases the existing grade is higher than any observed readings for each well (column B)
10. Choose SHGW to be the mean plus 3 std deviations unless it is higher than ground elevation for each well (column A)

Standard Deviation Analysis		All Data w/o Adj.	First Period Data only	Second Period Data only	[redacted]
For MW's installed in 1993	Min	0.30	0.14	0.07	0.30
	Median	0.67	0.37	0.25	0.67
	Average	0.69	0.37	0.38	0.69
	Max	1.19	0.72	1.14	1.19
For PZ's Installed in 2003	Min	0.26	0.26	0.07	0.41
	Average	0.62	0.56	0.11	0.63
	Max	0.90	0.97	0.18	0.90
PZ-45, MW-1, MW-3, MW-5	Min	0.14		0.14	0.59
	Average	0.83		0.83	0.94
	Max	1.44		1.44	1.44
For all Site data	Min	0.14	0.14	0.07	0.30
	Median	[redacted]	0.41	[redacted]	0.66
	Average	0.68	0.48	0.41	0.70
	Max	1.44	0.97	1.44	1.44
For abandoned PZ's	Median	0.65	0.58		0.65
	Average	0.62	0.62		0.64

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
							3.0		99.865%				25	36			42	50				
													First Period				Second Period					
	Potential SHGW	[redacted]	Well ID	Count	MAX	MIN	Std Deviations + Mean	Sample Mean	[redacted]	Top of Casing Elevation (feet MSL)	Range	Overall Std Dev	18-Apr-03 Period Sample Mean	5-Mar-84 Period Std Dev	Change in Mean	Change in Std Dev	14-Feb-07 Period Sample Mean	26-Jun-07 Period Std Dev	Change in Mean	Change in Std Dev	Start of Calcartous Layer (elev)	Depth to SHGW from Ground surface
	6.4	[redacted]	MW-2A	47	6.16	4.90	6.37	5.46		14.9	1.26	0.30	5.28	0.14	0.18	0.16	5.27	0.16	0.19	0.15		4.63
	8.6	[redacted]	MW-4A	46	7.98	6.15	8.58	7.16		14.24	1.83	0.47	7.31	0.37	-0.15	0.10	6.83	0.53	0.33	-0.06		1.42
	8.6	[redacted]	MW-6A	46	7.68	4.78	8.56	6.56		14.1	2.90	0.67	6.73	0.48	-0.17	0.19	5.76	0.34	0.80	0.33		1.44
	11.0	12.0	MW-9A	48	10.86	7.14	12.38	8.83		14.68	3.72	1.19	9.44	0.72	-0.62	0.47	7.84	1.14	0.99	0.05		
	11.0	[redacted]	MW-10A	46	10.47	6.24	10.95	8.49		16.35	4.23	0.82	8.95	0.55	-0.47	0.27	8.21	0.58	0.27	0.25		2.05
	11.8	15.3	MW-29	40	11.50	8.48	11.80	9.83		17.98	3.02	0.66	9.33	0.28	0.00	0.37					8.3	3.50
	11.3	11.7	MW-30	43	10.84	7.12	11.31	8.66		14.50	3.72	0.88	9.22	0.28	-0.56	0.60	7.75	0.16	0.91	0.73	9.7	0.39
	10.1	15.0	MW-31	42	9.76	7.94	10.13	8.74		17.81	1.82	0.47	8.99	0.15	-0.25	0.32	8.30	0.07	0.44	0.39	8.0	4.87
	12.0	15.0	MW-32	44	11.96	8.14	11.49	9.16		17.84	3.82	0.78	9.29	0.39	-0.14	0.39	8.35	0.11	0.81	0.67	5.5	3.04
	9.5	10.4	PZ-33	11	8.48	6.78	9.49	7.55		13.36	1.70	0.65	7.55	0.65							1.9	0.90
	12.9	16.4	PZ-34	14	11.47	8.95	12.92	10.29		19.37	2.52	0.88	10.18	0.97	0.11	-0.09	10.70	0.12	-0.41	0.76	3.4	3.49
	9.8	12.0	PZ-35	15	9.06	7.59	9.80	8.27		14.84	1.47	0.51	8.48	0.41	-0.22	0.10	7.67	0.07	0.59	0.44	9.0	2.18
	9.6	15.9	PZ-36	15	8.69	7.30	9.58	8.04		18.60	1.39	0.51	8.28	0.38	-0.23	0.14	7.40	0.08	0.64	0.43	3.9	6.30
	10.5	13.9	PZ-37	11	9.92	8.50	10.50	9.14		16.57	1.42	0.45	9.14	0.45							5.4	3.36
	11.8	21.7	PZ-38	14	10.73	8.85	11.81	9.99		24.70	1.88	0.60	10.26	0.32	-0.27	0.28	9.02	0.18	0.98	0.43	3.2	9.92
	11.8	17.4	PZ-39	12	10.68	8.92	11.81	9.94		20.42	1.76	0.63	10.24	0.34	-0.31	0.28	9.02	0.10	0.91	0.53	3.9	5.54
	10.3	11.2	PZ-40	11	9.06	8.78	10.26	7.79		13.68	2.28	0.82	7.19	0.82							7.7	0.89
		11.1	PZ-41	11	10.53	8.59	11.46	9.47		13.80	1.94	0.66	9.47	0.66							2.6	
	10.9	12.0	PZ-42	11	10.16	8.40	10.87	9.14		14.85	1.76	0.58	9.14	0.58							8.5	1.10
	7.7	11.2	PZ-43	11	6.90	6.15	7.69	6.46	[redacted]	14.11	0.75	0.26	6.46	0.26							7.7	3.55
	10.0	13.4	PZ-44	11	9.13	6.10	10.00	7.29		16.57	3.03	0.90	7.29	0.90							4.9	3.42
	9.8	13.57	MW-1	8	9.24	7.09	9.75	7.57		16.29	2.15	0.73										3.82
	10.2	11.81	MW-3	9	9.74	5.18	10.25	5.93		14.28	4.56	1.44					7.57	0.73				1.56
	7.2	10.53	MW-5	9	6.71	3.22	7.16	4.11		13.02	3.49	1.02					5.93	1.44				3.37
	12.2	13.8	PZ-45	7	10.67	10.27	12.22	10.44	[redacted]	16.7	0.40	0.14					4.11	1.02				1.62
Geomean	10.22																10.44	0.14			5.9	

[1] highlighted cells approximated from topo all others obtained from survey on boring logs

C&D PERMIT 0071



A	07/07	ISSUED FOR SCDHEC APPROVAL
ISSUE	DATE	DESCRIPTION

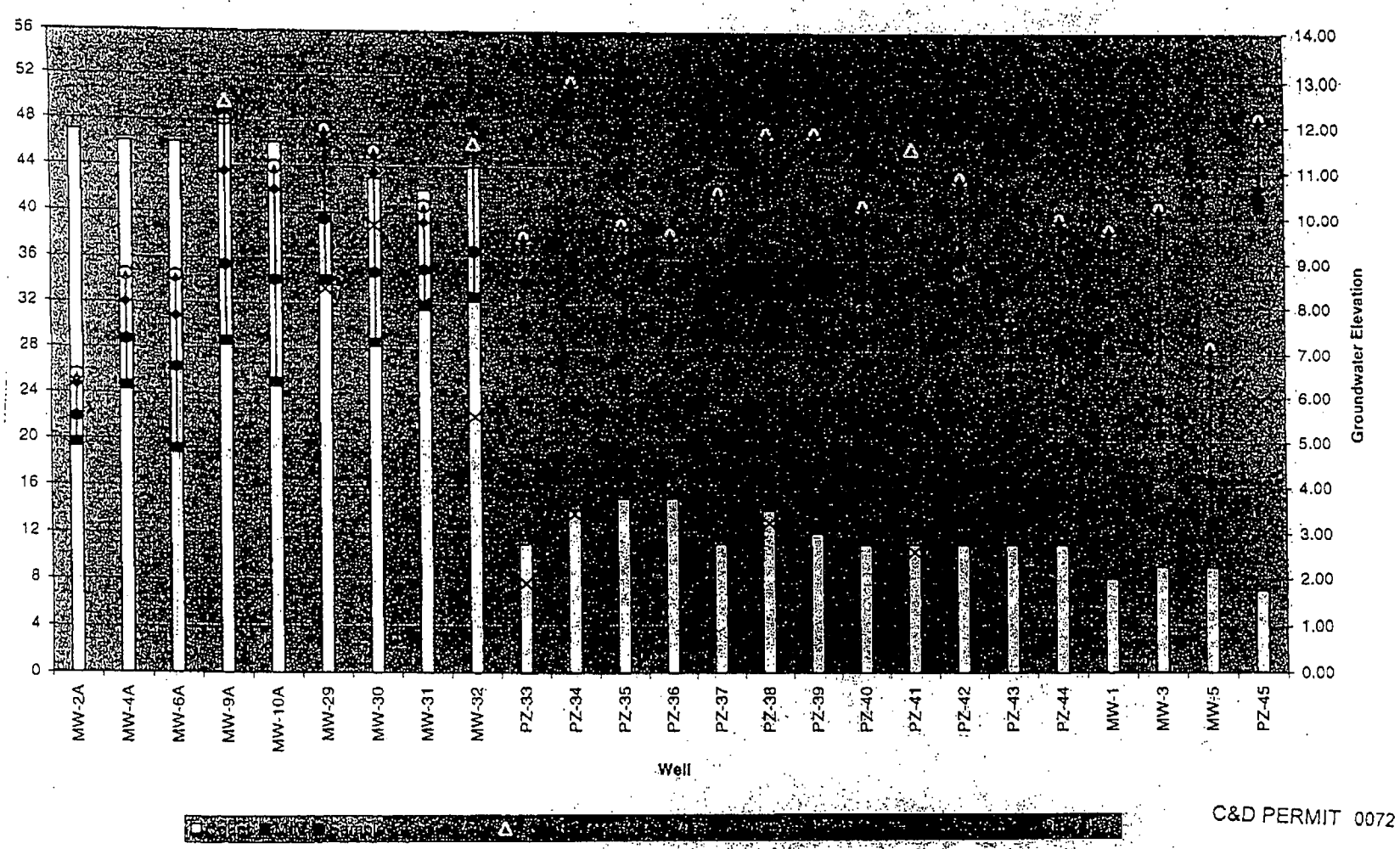
PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
Q.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	0000000000051678

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

OPERATIONS GRID
C&D PERMIT 0068

FILENAME	00C-07
SCALE	1"=100'
SHEET	C-07

WATER LEVEL VARIATION



C&D PERMIT 0072

0238

SUMMARY OF HISTORICAL GROUNDWATER DATA

Depth to Ground water

Well ID	26-May-93	10-Aug-93	26-Nov-93	14-Feb-94	30-May-94	30-Aug-94	27-Sep-94	27-Jan-95	11-Jul-95	23-Feb-96	29-Aug-96	10-Apr-97	22-Sep-97	23-Mar-98	24-Sep-98	22-Feb-99	23-Sep-99	9-Mar-00	24-Aug-00	12-Feb-01	8-Aug-01	13-Feb-02	18-Apr-03	30-May-03	27-Jun-03	31-Jul-03	5-Sep-03	1-Oct-03	3-Nov-03	11-Dec-03	7-Jan-04	4-Feb-04	5-Feb-04	5-Mar-04	18-Aug-04	22-Feb-05	17-Aug-05	30-Jan-06	22-Aug-06	14-Feb-07	24-May-07	30-May-07	1-Jun-07	8-Jun-07	12-Jun-07	18-Jun-07	22-Jun-07	26-Jun-07
MW-2A	9.32	9.18	9.40	9.19	9.67	8.74		9.14	9.39	9.22	9.29	9.00	9.00	8.94	9.24	9.19	9.29	9.36	8.93	8.79	10.00	9.53	9.66	9.54	9.54	9.36	9.44	9.74	9.77	9.56	9.8	9.67	9.8	9.6	9.29	9.43	9.89	9.36	9.92	9.37	9.80	9.50	9.85	9.60	9.70	9.55	9.55	9.75
MW-4A	7.11	7.05	6.94	6.45	7.88	6.64		6.34	7.72	6.91	7.34	7.51	7.47	6.64	7.10	7.20	6.85	6.49	7.57	6.98	7.01	6.95	7.05	6.88	6.97	6.61	6.66	6.31	7.56	7.05	7.57	7.06	6.81	6.65	6.39	6.61	7.29	6.63	8.09	6.26	7.85		8.00	7.65	7.45	7.40	7.20	7.50
MW-6A	6.85	6.43	7.47	6.87	8.33	6.99		6.64	8.06	7.44	7.76	7.87	7.19	6.75	7.54	7.18	6.64	6.42	7.96	7.63	7.67	7.76	7.39	7.24	7.31	6.65	6.95	6.72	8.20	7.61	8.08	7.49	7.64	7.15	7.08	7.23	7.37	7.14	9.32	8.87	8.45	8.52	8.70	8.30	8.20	8.00	7.90	8.20
MW-9A	5.08	6.55	6.95	4.14	7.35	5.04	4.32	4.10	7.20	4.41	7.54	5.67	5.19	4.33	6.55	4.78	6.41	4.39	7.29	6.94	6.50	6.60	4.94	4.73	5.12	4.28	4.40	5.66	6.22	6.02	6.32	5.47	5.28	4.39	5.66	5.65	6.17	4.24	7.39	3.82	7.10	7.23	7.30	7.10	7.30	7.25	7.10	7.40
MW-10A	10.11	8.09	8.06	6.93	8.48	6.93		5.88	8.73	7.72	8.60	8.27	7.73	6.54	8.54	7.93	8.71	7.88	8.93	9.19	8.71	8.61	7.38	7.11	7.21	6.16	6.82	7.64	8.00	7.91	8.01	7.73	7.71	7.1	6.69	7.47	7.67	7.42	8.06	6.75	8.35		8.50	8.30	8.50	8.20	8.10	8.40
MW-29			8.90	7.53	9.16	7.07		6.95	8.47	8.48	8.59	8.00	8.10	6.48	8.00	7.76	7.54	7.52	8.70	7.62	8.49	7.84	8.35	8.14	8.14	7.60	7.83	8.10	8.23	8.44	8.68	8.18	8.18	7.89	7.52	8.1	8.36	7.82	7.91			9.5				9.2	9.2	9.45
MW-30			6.80	6.11	7.32	7.18		5.84	7.38	6.45	6.73	6.20	6.04	3.66	6.30	4.77	5.76	5.45	6.40	4.95	5.92	5.41	5.45	5.21	5.38	5.26	4.97	5.69	5.75	5.47	5.1	5.14	5.05	4.87	4.22	5.05	6.62	4.68	5.08		6.85		7	6.65	6.65	6.7	6.55	6.85
MW-31			9.36	9.23	9.40	8.54		8.74	9.87	9.65	9.58	9.64	9.37	9.56	9.39	8.20	9.35	9.33	9.50	8.84	9.51	9.27	8.94	8.80	8.78	8.62	8.70	8.88	9.04	8.96	8.6	8.89	8.95	8.68	8.36	8.05	8.58	8.47	8.31			9.37		9.55	9.55	9.55	9.5	9.55
MW-32			8.06	6.93	8.48	6.93		5.88	8.73	8.98	9.56	9.35	9.12	8.51	9.25	8.14	9.07	8.41	9.39	8.62	9.43	9.14	8.40	8.30	8.35	8.21	8.21	9.55	8.81	8.75	8.27	8.77	8.69	8.28	8.18	8.37	8.68	8.14	8.25		9.4	9.45	9.5	9.4	9.6	9.5	9.4	9.7
PZ-33																							5.70	5.34	5.03	4.88	5.22	5.74	6.45	6.56	6.58		6.56	5.85									Well Abandoned							
PZ-34																							10.19	8.88	8.59	8.26	7.90	8.10	9.01	9.1	10.42		10.35	10.32																	
PZ-35																							6.08	6.12	6.20	5.78	5.94	6.39	6.90	6.89	6.9		6.65	6.08										7.12				8.8	8.6	8.6
PZ-36																							9.91	10.05	10.07	9.97	10.10	10.51	10.85	10.9	10.51		10.7	10										11.1				7.2	7.2	7.1	7.25
PZ-37																							7.09	7.35	7.48	6.65	7.08	7.88	8.07	7.9	7.9		7.29	7.06									Well Abandoned?						11.2	11.2	11.3
PZ-38																							14.69	14.24	14.24	14.17	13.97	14.22	14.71	14.27	14.92		14.92	14.5																	
PZ-39																							10.25	9.81	9.98	9.74	10.03	DAMAGED		10.38	10.08		10.75	10.6														15.7	15.5	15.85
PZ-40																							4.62	4.98	5.39	5.13	5.37	6.03	6.90	6.7	6.36		6.42	6.9														11.4	11.3	11.5
PZ-41																							3.27	3.77	4.10	3.71	3.92	4.12	5.21	5.1	4.67		4.6	5.2																	
PZ-42																							5.23	4.69	5.19	5.10	5.86	5.98	6.45	6.21	5.96		5.81	6.38																	
PZ-43																							7.21	7.38	7.50	7.38	7.60	7.89	7.94	7.88	7.72		7.64	7.96																	
PZ-44																							7.44	8.62	8.85	8.40	8.94	9.62	9.83	10.47	10.01		10.00	9.90																	
MW-1																																																
MW-3																																																
MW-5																																																
PZ-45																																																

These 3 wells installed in Fall 2006

Groundwater elevation

Well ID	D&F 26-May-93	D&F 10-Aug-93	D&F 26-Nov-93	D&F 14-Feb-94	D&F 30-May-94	D&F 30-Aug-94	D&F 27-Sep-94	D&F 27-Jan-95	D&F 11-Jul-95	D&F 23-Feb-96	D&F 29-Aug-96	D&F 10-Apr-97	D&F 22-Sep-97	D&F 23-Mar-98	D&F 24-Sep-98	D&F 22-Feb-99	D&F 23-Sep-99	D&F 9-Mar-00	D&F 24-Aug-00	D&F 12-Feb-01	D&F 8-Aug-01	D&F 13-Feb-02	HDR 18-Apr-03	HDR 30-May-03	HDR 27-Jun-03	HDR 31-Jul-03	HDR 5-Sep-03	HDR 1-Oct-03	HDR 3-Nov-03	HDR 11-Dec-03	HDR 7-Jan-04	D&F 4-Feb-04	HDR 5-Feb-04	HDR 5-Mar-04	D&F 18-Aug-04	D&F 22-Feb-05	D&F 17-Aug-05	D&F 30-Jan-06	D&F 22-Aug-06	D&F 14-Feb-07	HDR 24-May-07	HDR 30-May-07	HDR 1-Jun-07	HDR 8-Jun-07	HDR 12-Jun-07	HDR 18-Jun-07	HDR 22-Jun-07	HDR 26-Jun-07
MW-2A	5.58	5.72	5.50	5.71	5.23	6.16		5.76	5.51	5.68	5.61	5.90	5.90	5.96	5.66	5.71	5.61	5.54	5.97	6.11	4.90	5.37	5.24	5.36	5.36	5.54	5.46	5.16	5.13	5.34	5.10	5.23	5.10	5.30	5.61	5.47	5.01	5.54	4.98	5.53	5.10	5.40	5.05	5.30	5.20	5.35	5.35	5.15
MW-4A	7.13	7.19	7.30	7.79	6.36	7.60		7.90	6.52	7.33	6.90	6.73	6.77	7.60	7.14	7.04	7.39	7.75	6.67	7.26	7.23	7.29	7.19	7.36	7.27	7.63	7.58	7.93	6.68	7.19	6.67	7.18	7.43	7.59	7.85	7.63	6.95	7.61	6.15	7.98	6.39		6.24	6.59	6.79	6.84	7.04	6.74
MW-6A	7.25	7.67	6.63	7.23	5.77	7.11		7.46	6.04	6.66	6.34	6.23	6.91	7.35	6.56	6.92	7.46	7.68	6.14	6.47	6.43	6.34	6.71	6.86	6.79	7.45	7.15	7.38	5.90	6.49	6.02	6.61	6.46	6.95	7.02	6.87	6.73	6.96	4.78	5.23		5.58	5.40	5.80	5.90	6.10	6.20	5.90
MW-9A	9.60	8.13	7.73	10.54	7.33	9.64	10.36	10.58	7.48	10.27	7.14	9.01	9.49	10.35	8.13	9.90	8.27	10.29	7.39	7.74	8.18	8.08	9.74	9.95	9.56	10.40	10.28	9.02	8.46	8.66	8.36	9.21	9.40	10.29	9.02	9.03	8.51	10.44	7.29	10.86	7.58	7.45	7.38	7.58	7.38	7.43	7.58	7.28
MW-10A	6.24	8.26	8.29	9.42	7.87	9.42		10.47	7.62	8.63	7.75	8.08	8.62	9.81	7.81	8.42	7.64	8.47	7.42	7.16	7.64	7.74	8.97	9.24	9.14	10.19	9.53	8.71	8.35	8.44	8.34	8.62	8.64	9.25	9.66	8.88	8.68	8.93	8.29	9.60	8.00								
MW-29			9.08	10.45	8.82	10.91		11.03	9.51	9.50	9.39	9.98	9.88	11.50	9.98	10.22	10.44	10.46	9.28	10.36	9.49	10.14	9.63	9.84	9.84	10.38	10.15	9.88	9.75	9.54	9.30	9.80	9.80	10.09	10.46	9.88	9.62	10.16	10.07			8.48							
MW-30			7.70	8.39	7.18	7.32		8.66	7.12	8.05	7.77	8.30	8.46	10.84	8.20	9.73	8.74	9.05	8.10	9.55	8.58	9.09	9.05	9.29	9.12	9.24	9.53	8.81	8.75	9.03	9.40	9.36	9.45	9.63	10.28	9.45	9.88	9.82	9.42		7.65		7.50	7.85	7.85	8.78	8.78	8.53
MW-31			8.45	8.58	8.41	9.27		9.07	7.94	8.16	8.23	8.17	8.44	8.25	8.42	9.61	8.46	8.48	8.31	8.97	8.30	8.54	8.87	9.01	9.03	9.19	9.11	8.93	8.77	8.85	9.21	8.92	8.86	9.13	9.45	9.76	9.23	9.34	9.50			8.44		7.85	8.05	7.85	8.15	8.25	7.95
MW-32			9.78	10.91	9.36	10.91		11.96	9.11	8.86	8.28	8.49	8.72	9.33	8.59	9.70	8.77	9.43	8.45	9.22	8.41	8.70	9.44	9.54	9.49	9.63	9.63	8.29	9.03	9.09	9.57	9.07	9.15	9.56	9.66	9.47	9.16	9.70	9.59			8.44	8.39	8.34	8.44	8.24	8.34	8.44	8.14
PZ-33																							7.66	8.02	8.33	8.48	8.14	7.62	6.91	6.80	6.78																				
PZ-34																							9.18	10.49	10.78	11.11	11.47	11.27	10.36	10.27	8.95		6.80	7.51																	
PZ-35																							8.76	8.72	8.64	9.06	8.90	8.45	7.94	7.95	7.94		9.02	9.05																	
PZ-36																							8.692	8.55	8.53	8.63	8.50	8.09	7.75	7.70	8.09		8.19	8.76																	
PZ-37																							9.48	9.22	9.09	9.92	9.49	8.69	8.50	8.67	8.67		7.90	8.60																	
PZ-38																							10.01	10.46	10.46	10.53	10.73	10.48	9.99	10.43	9.78		9.28	9.51																	
PZ-39																							10.17	10.61	10.44	10.68	10.39			10.04	10.34		9.78	10.20																	
PZ-40																							9.067	8.70	8.29	8.55	8.31	7.65	6.78	6.98	7.32		9.67	9.82																	
PZ-41																							10.53	10.03	9.70	10.09	9.88	9.68	8.59	8.70	9.13		7.26	6.78																	
PZ-42																							9.62	10.16	9.66	9.75	8.99	8.87	8.40	8.64	8.89		9.20	8.60																	
PZ-43																							6.90	6.73	6.61	6.73	6.51	6.22	6.17	6.23	6.39		9.04	8.47																	
PZ-44																							9.13	7.95	7.72	8.17	7.63	6.95	6.74	6.10	6.56		6.47	6.25																	
MW-1																																	6.57	6.67																	
MW-3																																																	
MW-5																																																	
PZ-45																																																	

Well Abandoned
Well Abandoned
Well Abandoned

7.05		8.31	9.00	9.00	9.10	9.10	9.00	9.20																																										
4.54	8.90	8.95	9.10	8.75	8.85	8.70	8.50	8.85																																									
6.31	9.25	9.10	9.80	9.20	9.50	8.95	8.80	9.30																																								
		6.40	6.40	6.25	6.20	6.15	6.00	6.20																																								

9.24		7.98	7.29	7.29	7.19	7.19	7.29	7.09																																									
9.74	5.38	5.33	5.18	5.53	5.43	5.58	5.78	5.43																																									
6.71	3.77	3.92	3.22	3.82	3.52	4.07	4.22	3.72																																								
		10.27	10.27	10.42	10.47	10.52	10.67	10.47																																								

#.## Maximum Well Reading
#.## Minimum Well Reading

Blank cells had no data collected.

4-Hist Data

7/6/2007

C&D PERMIT 0073

Bees Ferry SHGW Updated for C&D.xls

EROSION CONTROL

C&D PERMIT 0074

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill		Computed: PM	Date: 7/6/07
Subject: Storm Water Drainage		Checked	Date
Task: Slope Drains		Sheet 1	Of 1

Objective:

Size the slope drains based on the largest drainage area.

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Orifice $Q = C_d * A * (2gh)^{0.5}$ Ref 1

Q (cfs) = Discharge

0.6 = C_d Coefficient of Discharge (dimensionless)

A (sf) = Cross Sectional Area of Flow at the orifice entrance

32.2 = Gravity g (ft/sec^2)

h (ft) = driving head measured from centroid of the orifice area to the water surface

Weir $Q = C_w * L * H^{1.5}$ Ref 1

Q (cfs) = Discharge

C_w = Weir Coefficient (dimensionless)

L (ft) = Length of weir measured along crest

H (ft) = driving head (crest of the weir to the water surface)

Manning's $D = 16 * (Q\,n / s^{0.5})^{3/8}$ Theoretical Size for pipe flowing full Ref 1

D = Pipe diameter (inches)

Q = Peak Flow (cfs)

0.010 = n, Mannings Roughness Coefficient for CPP

s = Pipe Slope (ft fall / ft run)

Calculations

Calculate Peak Flow Q=CIA

C=	0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50)	Ref 3
I (in/hr)=	8.0 25-yr, 24-hr storm	Ref 2
A (Ac.) =	8.14 largest drainage area	
A (Ac.) =	10.0 Drainage Area (used in calculations)	

Q (cfs)= 28.00

Pipe Slope (ft fall / ft run)	Peak Flow (cfs)	Min Rqd Pipe Size (in)	Selected Pipe Dia (in)	Manning's Possible Discharge Q (cfs)
0.24	28.0	13.01	18	66.5

Conclusion: Use 1 - 18" CPP.

C&D PERMIT 0075

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill		Computed: PHW	Date: 7/6/02
Subject: Storm Water Drainage		Checked	Date
Task: Slope Drain Inlet		Sheet 1	Of 1

Objective:

Determine the size of the slope drain inlet from the sideslope swale

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Orifice $Q = C_d * A * (2gh)^{0.5}$ Ref 1

Q (cfs) = Discharge

0.6 = C_d Coefficient of Discharge (dimensionless)

A (sf) = Cross Sectional Area of Flow at the orifice entrance

32.2 = Gravity g (ft/sec^2)

h (ft) = driving head measured from centroid of the orifice area to the water surface

Weir $Q = C_w * L * H^{1.5}$ Ref 1

Q (cfs) = Discharge

C_w = Weir Coefficient (dimensionless)

L (ft) = Length of weir measured along crest

H (ft) = driving head (crest of the weir to the water surface)

Manning's $D = 16 * (Q\,n / s^{0.5})^{3/8}$ Theoretical Size for pipe flowing full Ref 1

D = Pipe diameter (inches)

Q = Peak Flow (cfs)

0.01 = n, Mannings Roughness Coefficient for CPP

s = Pipe Slope (ft fall / ft run)

Calculations

Design Storm: 25-Yr, 24-hr

Q (cfs)= 5.0 from sideslope swale calculations

Pipe Inlet Slope (ft fall / ft run)	Channel Flow (cfs)	Selected Inlet Dia (in)	Cross Sectional Area of orifice (sf)	Depth of Flow in Channel (ft)	Driving Head water surface to centriod of orifice h (ft)	Orifice Possible Influent Q (cfs)	Manning's Possible Influent Q (cfs)	Comment
0.25	5.0	8	0.3	0.98	0.6	1.4	7.9	Orifice limits the flow

Pipe Inlet Slope - slope of pipe from swale to slope drain

Depth of Flow from Sideslope Swale Calculation (Critical Depth)

Conclusion: Use 1 - 8" CPP

C&D PERMIT 0076

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 1	Of 2

Objective

Design the upper reach of the perimeter channel on the southwest side

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5})$ Avg Shear Stress(T) = d*s*unit weight of water

Calculations

Min Channel Freeboard =	0.5	ft
Inside Channel Side Slope =	3	(enter X for X:1)
Outside Channel Side Slope =	3	(enter X for X:1)
Bottom Width, b =	3	ft

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.00	Ref 2
A (Ac) =	1.7	Approx Drainage Area measured on Final Grading Plan
A (Ac) =	2.5	Drainage Area (used in calculations)
Q (cfs) =	7.0	

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 3)	0.030	5.0	2.0
F	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
G	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
H	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
I	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
J	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
K	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAN	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 2	Of 2

Select Lining System for each channel slope that will handle the design flow when vegetated and when initially constructed.

Bottom Slope of existing channels around the site vary from 0.15% to 0.4%.
Avg Slope of existing grade along the channel is 0.35%
Assume a channel slope of 0.25%

Lining Type	Channel Slope	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining									
E	0.25%	2.82	0.80	4.29	0.53	2.82	1.6	0.1	
Initial Lining									
D	0.25%	1.88	0.65	3.20	0.45	1.88	2.2	0.1	Temp Lining Not Needed
Temporary Lining									
B	0.25%	3.19	0.85	4.69	0.56	3.19	1.5	0.1	

CONCLUSION

1. The above calculations are for the "Worst Case Scenario" or largest drainage area that drains to a perimeter ditch around Cell V & VI.

Drainage area= 2.5 ac
Overall Top Width (ft) = 7.8
Bottom Width (ft) = 3
Depth (ft) = 1.3 includes freeboard
Side Slope= 3H:1V

2. Permanent lining shall be grass

C&D PERMIT 0078

Southwest Channel Upper Reach

C&D Drainage Cals.xls

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 2-6-07	
Subject: Storm Water Drainage	Checked	Date	
Task: Perimeter Channels	Sheet 1	Of 2	

Objective

Design the lower reach of the perimeter channel on the southwest side

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5})$ Avg Shear Stress(T) = d*s*unit weight of water

Calculations

Min Channel Freeboard =	0.5	ft
Inside Channel Side Slope =	3	(enter X for X:1)
Outside Channel Side Slope =	3	(enter X for X:1)
Bottom Width, b =	4	ft

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.00	Ref 2
A (Ac) =	2.5	Upper Reach
A (Ac) =	14.4	Lower Reach (Approx Drainage Area measured on Final Grading Plan)
A (Ac) =	16.9	Total
A (Ac) =	21.0	Drainage Area (used in calculations)
Q (cfs) =	58.8	

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 3)	0.030	5.0	2.0
F	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
G	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
H	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
I	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
J	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
K	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

C&D PERMIT 0079

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 2	Of 2

Select Lining System for each channel slope that will handle the design flow when vegetated and when initially constructed.

Bottom Slope of existing channels around the site vary from 0.15% to 0.4%.
Avg Slope of existing grade along the channel is 0.35%
Assume a channel slope of 0.25%

Lining Type	Channel Slope	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining									
E	0.25%	23.68	2.0	20.70	1.22	23.68	2.8	0.3	
Initial Lining									
D	0.25%	15.79	1.7	15.34	1.04	15.79	[redacted]	0.3	Temp Lining Needed
Temporary Lining									
B	0.25%	26.83	2.2	22.71	1.28	26.83	2.6	0.3	

CONCLUSION

1. The above calculations are for the "Worst Case Scenario" or largest drainage area

Drainage area=	**21 ac**	
Overall Top Width =	12.3	ft
Bottom Width (ft) =	4	
Depth (ft) =	2.7	includes freeboard
Side Slope=	**3H:1V**	

2. Permanent lining shall be grass and the temporary lining shall be Curlex I.

C&D PERMIT 0080

HDR Computation

Job No. 11613-516/8-018 1

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 1	Of 2

Objective Design the perimeter Channel on the northwest side

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5})$ Avg Shear Stress(T) = d*s*unit weight of water

Calculations

Min Channel Freeboard =	0.5	ft
Inside Channel Side Slope =	3	(enter X for X:1)
Outside Channel Side Slope =	3	(enter X for X:1)
Bottom Width, b =	2	ft

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.00	Ref 2
A (Ac) =	7.4	Approx Drainage Area measured on Final Grading Plan
A (Ac) =	8.0	Drainage Area (used in calculations)
Q (cfs) =	22.4	

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 2)	0.030	5.0	2.0
F	Unmaintained brushy channel	0.080		
G	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
H	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
I	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
J	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
K	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
L	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

C&D PERMIT 0081

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAL	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 2	Of 2

Select Lining System for each channel slope that will handle the design flow when vegetated and when initially constructed.

Bottom Slope of existing channels around the site vary from 0.15% to 0.4%.
Avg Slope of existing grade along the channel is 0.69%
Assume a channel slope of 0.4%

Lining Type	Channel Slope	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining									
E	0.4%	7.13	1.4	8.38	0.79	7.13	2.7	0.3	
Initial Lining									
D	0.4%	4.75	1.1	6.19	0.67	4.75	[redacted]	0.3	Temp Lining Needed
Temporary Lining									
B	0.4%	8.08	1.4	9.20	0.82	8.08	2.4	0.4	

CONCLUSION

Drainage area=	**8 ac**	
Overall Top Width =	10.7	
Bottom Width (ft) =	2	
Depth (ft) =	1.9	includes freeboard
Side Slope=	3	

C&D PERMIT 0082

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PRW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 1	Of 2

Objective Design the perimeter channel along the Borrow Area / Sediment Basin

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5})$ Avg Shear Stress(T) = d*s*unit weight of water

Design Channels along the access road

Min Channel Freeboard =	0.5	ft
Inside Channel Side Slope =	3	(enter X for X:1)
Outside Channel Side Slope =	3	(enter X for X:1)
Bottom Width, b =	2	ft

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.00		Ref 2
A (Ac) =	1.8	drainage area	
A (Ac) =	2.0	Drainage Area (used in calculations)	
Q (cfs) =	5.6		

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 2)	0.030	5.0	2.0
F	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
G	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
H	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
I	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
J	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
K	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

C&D PERMIT 0083

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 2	Of 2

Select Lining System for each channel slope that will handle the design flow when vegetated and when initially constructed.

Bottom Slope of existing channels around the site vary from 0.15% to 0.4%.
Avg Slope of existing grade along the channel is 0.46%
Assume a channel slope of 0.3%

Lining Type	Channel Slope	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining									
E	0.3%	2.06	0.77	3.34	0.48	2.06	1.7	0.1	
Initial Lining									
D	0.3%	1.37	0.63	2.48	0.41	1.37	2.3	0.1	Temp Lining Not Needed
Temporary Lining									
B	0.3%	2.33	0.82	3.66	0.51	2.33	1.5	0.2	

CONCLUSION

1. The above calculations are for the "Worst Case Scenario" or largest drainage area

Drainage area= 2 ac
Bottom Width (ft) = 2
Depth (ft) = 1.32 includes freeboard
Side Slope= 3H:1V

2. Permanent lining shall be grass and the temporary lining shall be Curlex I.

C&D PERMIT 0084

HDR Computation

Job No. 11613-51678-018..1

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 1	Of 2

Objective Determine the Capacity of the Existing Channel on the northeast side

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5}))$ Avg Shear Stress(T) = d*s*unit weight of water

Existing Channel Dimensions

Estimated from Sept 9, 2006 aerial survey

Bottom Width (ft):	7.5	
Depth (ft) :	4	max
Side Slope :	2	:1 (varies to 3:1)
Channel Slope:	0.0015	
Lining:	grass	unmaintained, heavily vegetated
Drainage Area (ac):	106	max (area will be less once the lined MSW unit is constructed to divert flow to SB #2)

Calculations

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) = 8.00 Ref 2

Q (cfs) = 296.8

C&D PERMIT 0085

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PMD	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Perimeter Channels	Sheet 2	Of 2

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 2)	0.030	5.0	2.0
F	Unmaintained brushy channel	0.080		
G	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
H	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
I	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
J	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
K	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
L	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

Channel Capacity

Lining Type	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Z_{req}
E	4.6	75.88	2.72	147.82	154.30

CONCLUSION

While the existing channel calculation seems inadequate to handle the flow, observations during a rain event indicate all flow is contained in the channel:
The drainage area is not significantly changing.

C&D PERMIT 0086

HDR Computation

Job No. 11613-516/3-018 1

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Access Road Channel	Sheet 1	Of 2

Objective Design the Channel along the access road

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual
4. Maccaferri Environmental Solutions

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5}))$ Avg Shear Stress(T) = d*s*unit weight of water

Calculations

Min Channel Freeboard =	0.5	ft
Inside Channel Side Slope =	3	(enter X for X:1)
Outside Channel Side Slope =	3	(enter X for X:1)
Bottom Width, b =	2	ft

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.00	Ref 2
A (Ac) =	3.0	Approx Drainage Area measured on Final Grading Plan
A (Ac) =	5.0	Drainage Area (used in calculations)
Q (cfs) =	14.0	

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 2)	0.030	5.0	2.0
F	Unmaintained brushy channel	0.080		
G	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
H	Reno Mattress (6-inch) Ref 4	0.028	11.5	4.88
I	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
J	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
K	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
L	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
M	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

C&D PERMIT 0087

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAL	Date: 7-6-07
Subject: Storm Water Drainage	Checked	Date
Task: Access Road Channel	Sheet 2	Of 2

Select Lining System for each channel slope that will handle the design flow when vegetated and when initially constructed.

The channel is a constant depth along the access road. The access road is approx 10% slope.

Lining Type	Channel Slope	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining									
E	10.0%	0.89	0.5	1.81	0.35	0.89	[redacted]	[redacted]	
H	10.0%	0.82	0.5	1.70	0.33	0.82	8.2	3.1	
Initial Lining									
D	10.0%	0.59	0.4	1.34	0.29	0.59	[redacted]	[redacted]	Temp Lining Needed
Temporary Lining									
B	10.0%	1.01	0.5	1.98	0.36	1.01	[redacted]	[redacted]	

CONCLUSION

Drainage area=	5 ac	
Overall Top Width =	5.3	
Bottom Width (ft) =	2	
Depth (ft) =	1.0	includes freeboard
Side Slope=	3	

Channel Lining = Reno Mattress or equivalent

C&D PERMIT 0088

HDR Computation

Job No. 11613-57678-018

Project:	Bees Ferry C&D Landfill	Computed: RAW	Date: 7/6/17
Subject:	Storm Water Drainage	Checked	Date
[redacted]:	Side Slope Swales (Initial Design)	Sheet 1	Of 4

Objective

Determine max length for the side slope swales based given dimensions of the bench

References:

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Constraints

Minimize the cross sectional area with consideration for the bench width.

Drainage Area

Calculate Peak Flow

Q (cfs) = CIA = Peak Flow

Drainage Area, A (acres) = to be determined

Runoff Coefficient, C =	0.35	Ag Land, Bare Packed Soil, Rough (0.20 - 0.50)	Ref 3
Intensity, I (in/hr) =	8.0	25-yr, 24-hr storm Design Storm	Ref 2

Equations:

Normal Depth Procedure (Ref 1)

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= bd+z(d^2) $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ R=Area/(b+2d((z^2)+1)^.5) Q=CIA

Set the velocity near the maximum allowed for grass lined channel and find maximum drainage area

Givens

Desired Freeboard =	0.5	feet	
Bench Width =	14	feet	(County requirement for equipment access)
Landfill Side Slope =	3	H:1V	
Bench Cross Slope =	7%		
Vertical Spacing (ft) =	45		
Channel Slope (s) =	0.9-2.6%	Typical post settlement values of a 3% design	
Design Channel Slope (s) =	0.03	feet fall / foot run	
Manning's n =	0.030	Grass Lined, 0.5-2.0 ft	
max permissible velocity (ft/sec) =	5.0	for 0.5-2.0 ft depth	
Allowable Shear Stress (psf) =	2.0	Grass Lined, 0.5-2.0 ft	

C&D PERMIT 0089

HDR Computation

Job No. 11613-57678-018

Project:	Bees Ferry C&D Landfill	Computed: PM	Date: 7/6/07
Subject:	Storm Water Drainage	Checked	Date
Task:	Side Slope Swales (Initial Design)	Sheet 2	Of 4

Permanent Lining

Length (ft)	Width / Spacing (ft)	Drainage Area (ac)	Q (cfs)	Inside Channel Side Slope (z)	Outside Channel Side Slope (m)	Bottom Width (ft)	Cross Sectional A (sf)
700	149	2.4	6.7	3	14.3	0	2.02

Flow Depth d (ft)	Critical Depth (ft)	Z_{req}	R	Z_{avail}	V (ft/sec)	Allowable Shear Stress (psf)	Comment
0.48	0.98	0.78	0.24	0.78	3.3	0.91	OK

Minimum Depth (ft) = 1.0 (includes 0.5' freeboard)

Check velocity in bare earth condition

Manning's n =	0.020	Ordinary Firm Loam	Ref 2
max permissible velocity (ft/sec) =	3.5	Ordinary Firm Loam	Ref 2
Allowable Shear Stress (psf) =	2.0	Ordinary Firm Loam	Ref 2

Length (ft)	Width / Spacing (ft)	Drainage Area (ac)	Q (cfs)	Inside Channel Side Slope (z)	Outside Channel Side Slope (m)	Bottom Width (ft)	Cross Sectional A (sf)
700	149	2.4	6.7	3	14.3	0	1.49

Flow Depth d (ft)	Critical Depth (ft)	Z_{req}	R	Z_{avail}	V (ft/sec)	Comment
0.42	0.98	0.52	0.21	0.52	4.5	if > 3.5 fps need temp lining

C&D PERMIT 0090

HDR Computation

Job No. 11613-57678-018

Project:	Bees Ferry C&D Landfill	Computed:	PAL	Date:	7/6/07
Subject:	Storm Water Drainage	Checked		Date	
	Side Slope Swales (Initial Design)	Sheet	3	Of	4

Select a Temporary Lining

Manning's n =	0.034	Erosion Control Blanket Single Net, Curlex I
max permissible velocity (ft/sec) =	5.0	Erosion Control Blanket Single Net, Curlex I
Allowable Shear Stress (psf) =	1.55	Erosion Control Blanket Single Net, Curlex I

Length (ft)	Width / Spacing (ft)	Drainage Area (ac)	Q (cfs)	Inside Channel Side Slope (z)	Outside Channel Side Slope (m)	Bottom Width (ft)	Cross Sectional A (sf)
700	149	2.4	6.7	3	14	0	2.22

Flow Depth d (ft)	Critical Depth (ft)	Z_{req}	R	Z_{avail}	V (ft/sec)	Allowable Shear Stress (psf)	Comment
0.51	0.98	0.88	0.25	0.88	3.0	0.95	OK

Check effects of settlement (flatter channel slope) on flow depth in the permanent channel

Channel Slope After Settlement (s) =	0.015	ft fall / foot run (Assumed value)
max permissible velocity (ft/sec) =	5.0	for 0.5-2.0 ft
Allowable Shear Stress (psf) =	2.0	Grass Lined, 0.5-2.0 ft

Length (ft)	Width / Spacing (ft)	Drainage Area (ac)	Q (cfs)	Inside Channel Side Slope (z)	Outside Channel Side Slope (m)	Bottom Width (ft)	Cross Sectional A (sf)
700	149	2.4	6.7	3	14.3	0	2.62

Flow Depth d (ft)	Critical Depth (ft)	Z_{req}	R	Z_{avail}	V (ft/sec)	Allowable Shear Stress (psf)	Comment
0.55	0.98	1.10	0.27	1.10	2.6	0.52	OK

Flow Depths all less than 0.98' therefore channels all ok

C&D PERMIT 0091

HDR Computation

Job No. 11613-57678-018

Project:	Bees Ferry C&D Landfill	Computed: PKS	Date: 7/6/07
Subject:	Storm Water Drainage	Checked	Date
Task:	Side Slope Swales (Initial Design)	Sheet 4	Of 4

Conclusion:

Limiting the drainage area per swale to 2.4 acres

Construct the bench with a "V" shaped channel with the following dimensions:

Vertical Spacing (ft) =	45
Length (ft) =	< 700
Outside Channel Side Slope (x:1) =	14.3
Inside Channel Side Slope (x:1) =	4
Design Channel Slope =	3%
Bottom Width (ft) =	0
Permanent Lining type =	Grass
Temporary Lining type =	Curlex I or equivalent

C&D PERMIT 0092

HDR Computation

Job No. 11613-51078-018

Project: Bees Ferry C&D Landfill	Computed: PKW	Date: 7/6/07
Subject: Storm Water Drainage	Checked	Date
Task: Side Slope Swales (Final Design)	Sheet 1	Of 3

Objective

Verify the flow depth and lining of the side slope swales based on the max drainage area to a side slope swale shown on the grading plan.

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Normal Depth Procedure (Manning's Eqn) Ref 1

$AR^{2/3}=Qn/1.49s^{0.5}$ Area (A)= $bd+z(d^2)$ $Z_{av}=AR^{2/3}$

$Z_{req}=Qn/1.49s^{0.5}$ $R=Area/(b+2d((z^2+1)^{0.5})$ Avg Shear Stress(T) = d*s*unit weight of water

Given

Min Channel Freeboard =	0.5	ft	
Landfill Side Slope =	3	(enter X for X:1)	
Bench Cross Slope =	7%		
Bench Slope =	14.3	:1	
Bottom Width, b =	0	ft	
Bench Width =	14	feet	(County requirement for equipment access)
Critical Depth =	0.98	feet	
Design Channel Slope (s) =	0.03	feet fall / foot run	

Calculations

Q (cfs) = CIA = Peak Flow

Runoff Coefficient, C = 0.35 Ag Land, Bare Packed Soil, Rough (0.20 - 0.50) Ref 3

Design Storm: 25-Yr, 24-hr

I (in/hr) =	8.0	Ref 2
A (Ac) =	1.6	Max Drainage Area measured on Final Grading Plan
A (Ac) =	1.8	Drainage Area (used in calculations)
Q (cfs) =	5.0	

C&D PERMIT 0093

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PMD	Date: 7/6/07	
Subject: Storm Water Drainage	Checked	Date	
Task: Side Slope Swales (Final Design)	Sheet 2	Of 3	

Various Lining Types

Lining Type	Lining Description	Manning's n depths of 0.5-2.0 ft	Vp (ft/sec)	Allowable Shear Stress psf
A	Jute Net (HEC-15)	0.015	2.0	0.45
B	Erosion Control Blanket Single Net (Curlex 1)	0.034	5.0	1.55
C	Erosion Control Blanket Double Net (Curlex HV)	0.026	10.0	1.65
D	Ordinary Firm Loam (Ref 2)	0.020	3.5	2.0
E	Grass Lined (Ref 3)	0.030	5.0	2.0
F	6" Rip Rap (Ref 2, Ref 1)	0.069	9.0	2.0
G	Unvegetated Turf Reinforcement Mat (TRM) (NAG C350)	0.025	9.5	2.25
H	Class D Phase 2 (Partially vegetated) TRM (NAG C350)	0.048	14.0	3.34
I	12" Rip Rap (Ref 2, Ref 1)	0.078	12.5	4.0
J	Class B Phase 3 (Fully vegetated) TRM (NAG C350)	0.048	18.0	5.7
K	Concrete (HEC-15, EPA 832-F-99-002)	0.013	25.0	10.0

Select a Lining System that will handle the design flow when vegetated and when initially constructed.

Lining Type	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)	
Permanent Lining								
E	0.59	0.44	1.64	0.22	0.59	3.1	0.8	
Initial Lining								
D	0.39	0.37	1.21	0.18	0.39	[redacted]	0.7	Temp Lining Needed
Temporary Lining								
B	0.66	0.45	1.79	0.22	0.66	2.8	0.9	

C&D PERMIT 0094

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PAW	Date: 7/6/07
Subject: Storm Water Drainage	Checked	Date
Task: Side Slope Swales (Final Design)	Sheet 3	Of 3

Check flow depth after settlement

Design Channel Slope (s) = 0.03
Assume the channel slope settles (s) = 0.020
Bench Cross Slope = 7%
Bench Cross Slope = 14.3 :1

Lining Type	Crictical Depth d (ft)	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)
E	0.98	0.72	0.47	1.91	0.23	0.72	2.6	0.6

Design Channel Slope (s) = 0.03
Design Channel Slope (s) = 0.03
Assume the Bench Cross Slope settles = 3.5%
Assume the Bench Cross Slope settles = 28.6 :1

Lining Type	Crictical Depth d (ft)	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)
E	0.49	0.59	0.3	1.90	0.17	0.59	2.6	0.7

Design Channel Slope (s) = 0.03
Assume the channel slope settles (s) = 0.020
Assume the Bench Cross Slope settles = 3.5%
Assume the Bench Cross Slope settles = 28.6 :1

Lining Type	Crictical Depth d (ft)	Z_{req}	Flow Depth d (ft)	Cross Sectional Area (sf)	R	Z_{avail}	Velocity (ft/sec)	Average Shear Stress (lb/sf)
E	0.49	0.72	0.4	2.21	0.19	0.72	2.3	0.7

CONCLUSION

Worse Case
Critial Depth (ft) = 0.49
Max Flow Depth (ft) = 0.47

1 If the drainage area decreases or if there is more vegetation, the max flow depth will be less (ie a lower Q)
2 The dimensions of the bench are adequate
3 Permanent lining shall be grass and the temporary lining shall be Curlex I.

C&D PERMIT 0095

HDR Computation

Job No. 11613-51678-018

Project: Bees Ferry C&D Landfill	Computed: PRW	Date: 7-6-2
Subject: Storm Water Drainage	Checked	Date
Task: Access Road Crossing Culvert	Sheet 1	Of 1

Objective:

Determine the size of the culvert for the access road crossing at the middle of the access road

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Orifice $Q = C_d * A * (2gh)^{0.5}$ Ref 1

Q (cfs) = Discharge

0.6 = C_d Coefficient of Discharge (dimensionless)

A (sf) = Cross Sectional Area of Flow at the orifice entrance

32.2 = Gravity g (ft/sec^2)

h (ft) = driving head measured from centroid of the orifice area to the water surface

Weir $Q = C_w * L * H^{1.5}$ Ref 1

Q (cfs) = Discharge

C_w = Weir Coefficient (dimensionless)

L (ft) = Length of weir measured along crest

H (ft) = driving head (crest of the weir to the water surface)

Manning's $D = 16 * (Q\,n / s^{0.5})^{3/8}$ Theoretical Size for pipe flowing full Ref 1

D = Pipe diameter (inches)

Q = Peak Flow (cfs)

0.010 = n, Mannings Roughness Coefficient for CPP

s = Pipe Slope (ft fall / ft run)

Calculations

Calculate Peak Flow Q=CIA

Design Storm: 25-Yr, 24-hr

Runoff Coefficient, C =	0.35	Ag Land, Bare Packed Soil, Rough (0.20 - 0.50)	Ref 3
I (in/hr) =	8.00		Ref 2
A (Ac) =	3.0	Approx Drainage Area measured on Final Grading Plan	
A (Ac) =	4.0	Drainage Area (used in calculations)	
Q (cfs)=	11.2	cfs, Flow	

1-pipe

Pipe Inlet Slope (ft fall / ft run)	Channel Flow (cfs)	Selected Inlet Dia (in)	Cross Sectional Area of orifice (sf)	Depth of Channel (ft)	Driving Head water surface to centriod of orifice h (ft)	Orifice Possible Discharge Q (cfs)	Manning's Possible Discharge Q (cfs)	Comment
0.010	11.2	18	1.8	2.5	1.8	11.3	13.7	

Conclusion: Use 1 - 18" CPP @ 1% slope

C&D PERMIT 0096

HDR Computation

Job No. 11613-51676-018

Project: Bees Ferry C&D Landfill		Computed: PAL	Date: 2-6-07
Subject: Storm Water Drainage		Checked	Date
Task: Access Road Crossing Culvert		Sheet 1	Of

Objective:

Determine the size of the culvert for the channel crossing at the bottom of the access road

References

1. Elements of Urban Stormwater Design, H. Rooney Malcom, P.E.
2. SC Climatology Office, Climate Report No. G32, June 1998
3. NC Erosion and Sediment Control Planning and Design Manual

Equations

Orifice $Q = C_d * A * (2gh)^{0.5}$ Ref 1

Q (cfs) = Discharge

0.6 = C_d Coefficient of Discharge (dimensionless)

A (sf) = Cross Sectional Area of Flow at the orifice entrance

32.2 = Gravity g (ft/sec^2)

h (ft) = driving head measured from centroid of the orifice area to the water surface

Weir $Q = C_w * L * H^{1.5}$ Ref 1

Q (cfs) = Discharge

C_w = Weir Coefficient (dimensionless)

L (ft) = Length of weir measured along crest

H (ft) = driving head (crest of the weir to the water surface)

Manning's $D = 16 * (Q\,n / s^{0.5})^{3/8}$ Theoretical Size for pipe flowing full Ref 1

D = Pipe diameter (inches)

Q = Peak Flow (cfs)

0.010 = n, Mannings Roughness Coefficient for CPP

s = Pipe Slope (ft fall / ft run)

Calculations

Calculate Peak Flow Q=CIA

Q (cfs)= 22.4 cfs, Flow from Northwest Drainage Channel

1.9 ft, Channel Flow Depth Northwest Channel Calculation

0.004 Pipe slope same as Northwest Channel slope

1-pipe

Pipe Inlet Slope (ft fall / ft run)	Channel Flow (cfs)	Selected Inlet Dia (in)	Cross Sectional Area of orifice (sf)	Depth of Channel (ft)	Driving Head water surface to centriod of orifice h (ft)	Orifice Possible Discharge Q (cfs)	Manning's Possible Discharge Q (cfs)	Comment
0.004	22.4	24	3.1	1.9	0.9	14.7	18.6	

2-pipes

Pipe Inlet Slope (ft fall / ft run)	Channel Flow (cfs)	Selected Inlet Dia (in)	Cross Sectional Area of orifice (sf)	Depth of Channel (ft)	Driving Head water surface to centriod of orifice h (ft)	Orifice Possible Discharge Q (cfs)	Manning's Possible Discharge Q (cfs)	Comment
0.004	11.2	18	1.8	2.4	1.7	11.1	8.7	Need to make channel slightl deeper to get adequate head

Conclusion: Use 2 - 18" CPP

C&D PERMIT 0097

HDR Computation

Job No. 11613-51678-018

Project:	Bees Ferry C&D Landfill	Computed: DAW	Date: 7-6-07
Subject:	Storm Water Drainage	Checked:	Date:
Task:	Drop Inlet	Sheet: 1	Of: 1

Objective: Size the Grate for the Drop Inlet at the access road crossing.

Q (cfs)= 11.2 cfs, Flow to culvert (from Access Road Culvert Crossing)

Equations

Orifice $Q = C_d * A * (2gh)^{0.5}$

Q (cfs) = Discharge

0.60 = C_d Coefficient of Discharge (dimensionless)

A (sf) = Cross Sectional Area of Flow at the orifice entrance

32.2 = Gravity g (ft/sec^2)

h (ft) = driving head measured from centroid of the orifice area to the water surface

Weir $Q = C_w * L * H^{1.5}$

Q (cfs) = Discharge

C_w = Weir Coefficient (dimensionless)

L (ft) = Length of weir measured along crest

H (ft) = driving head (crest of the weir to the water surface)

Manning's $D = 16 * (Q\,n / s^{0.5})^{3/8}$

D = Pipe diameter (inches)

Q = Peak Flow (t Theoretical Size for pipe flowing full

0.012 = n, Mannings Roughness Coefficient for ADS CPP

s = Pipe Slope (ft fall / ft run)

Various Grates

Max Allowable head h (ft) = 2.5 (depth of channel)

as Weir	Grate	Opening Size	# of Openings	C_w (free fall)	L (ft)	Q (cfs)	Overall Size	Comment
	Tindall							data not available
	Neenah, R-4215-C	1 5/8" x 34"	9	3	11.3	134.0	34" x 34"	Convex
	Neenah, R-3349-A			3	7.7	91.3	25" x 35"	Concave
	USF 6429	1 1/4" x 6 9/16"	48	3	62.5	741.2	24" x 36"	Flat Grate
	USF 6238	9 7/8" x 1 1/2"	30	3	56.9	674.8	24" x 36"	Flat Grate
	USF 6280	1 5/8" x 5 3/16"	30	3		0.0	27" x 51"	Flat Grate

as Orifice	Grate	C_d	A (si)	A (sf)	Q (cfs)	
a	Tindall I23F	0.6	480	3.3	25.4	
b	Neenah, R-4215-C	0.6	475	3.3	25.1	
c	Neenah, R-3349-A	0.6	259	1.8	13.7	
d	USF 6627	0.6	375	2.6	19.8	steel, H-20
e	USF 6658	0.6	1,305	9.1	69.0	steel, H-20
f	USF 6429	0.6	400	2.8	21.1	
g	USF 6238	0.6	445	3.1	23.5	
h	USF 6280	0.6	595	4.1	31.5	

Conclusion:

Use a Neenah R-3349-A or equivalent.

C&D PERMIT 0098

Table 8.03a
Value of Runoff Coefficient (C) for Rational Formula

Land Use	C
Business:	
Downtown areas	0.70-0.95
Neighborhood areas	0.50-0.70
Residential:	
Single-family areas	0.30-0.50
Multi units, detached	0.40-0.60
Multi units, attached	0.60-0.75
Suburban	0.25-0.40
Industrial:	
Light areas	0.50-0.80
Heavy areas	0.60-0.90
Parks, cemeteries	0.10-0.25
Playgrounds	0.20-0.35
Railroad yard areas	0.20-0.40
Unimproved areas	0.10-0.30
Streets:	
Asphalt	0.70-0.95
Concrete	0.80-0.95
Brick	0.70-0.85
Drives and walks	0.75-0.85
Roofs	0.75-0.85

Land Use	C
Lawns:	
Sandy soil, flat, 2%	0.05-0.10
Sandy soil, ave., 2-7%	0.10-0.15
Sandy soil, steep, 7%	0.15-0.20
Heavy soil, flat, 2%	0.13-0.17
Heavy soil, ave., 2-7%	0.18-0.22
Heavy soil, steep, 7%	0.25-0.35
Agricultural land:	
Bare packed soil	
Smooth	0.30-0.60
Rough	0.20-0.50
Cultivated rows	
Heavy soil no crop	0.30-0.60
Heavy soil with crop	0.20-0.50
Sandy soil no crop	0.20-0.40
Sandy soil with crop	0.10-0.25
Pasture	
Heavy soil	0.15-0.45
Sandy soil	0.05-0.25
Woodlands	0.05-0.25

NOTE: The designer must use judgment to select the appropriate C value within the range for the appropriate land use. Generally, larger areas with permeable soils, flat slopes, and dense vegetation should have lowest C values. Smaller areas with slowly permeable soils, steep slopes, and sparse vegetation should be assigned highest C values.

Source: American Society of Civil Engineers

The overland flow portion of flow time may be determined from Figure 8.03a. The flow time (in minutes) in the channel can be estimated by calculating the average velocity in feet per minute and dividing the length (in feet) by the average velocity.

Step 4. Determine the rainfall intensity, frequency, and duration (Figures 8.03b through 8.03g—source: North Carolina State Highway Commission; Jan. 1973). Select the chart for the locality closest to your location. Enter the "duration" axis of the chart with the calculated time of concentration, Tc. Move vertically until you intersect the curve of the appropriate design storm, then move horizontally to read the rainfall intensity factor, i, in inches per hour.

Step 5. Determine peak discharge, Q (ft^3/sec), by multiplying the previously determined factors using the rational formula (Sample Problem 8.03a).

C&D PERMIT 0099

South Carolina

State Climatology Office

MAXIMUM RAINFALL INTENSITY IN SOUTH CAROLINA BY COUNTY

John C. Purvis
Wes Tyler
Scott Sidlow

Climate Report No. G32

South Carolina State Climatology Office
1201 Main Street
Suite 1100
Columbia, South Carolina 29201

June 1988

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Introduction

Maximum Rainfall Intensity Expected At the Center of Each County

References

INTRODUCTION

The growing environmental awareness of the past few years has increased the demand for hydrologic planning and design for small drainage areas. Examples of such drainage areas are cattle feedlots and urban shopping and parking areas. Hydrologic design practices and legal standards are generally expresses in terms of control of storm slow of a specified frequency of recurrence. Precipitation frequencies for short duration are an essential input to evaluating the runoff frequencies from small drainage areas.

Until about 1953, economic and engineering design requiring rainfall frequency data was based largely of Yarnell=s paper which contains a series of generalized maps for several combinations of durations and return periods. Yarnell=s maps are based on data from about 200 first order Weather Bureau stations which maintained complete recording-gauge records. In 1940, about 5 years after Yarnell=s paper was published, a hydrologic network of recording gages was installed to supplement both the Weather Bureau recording gages and the relatively latger number of nonrecording gages. The additional

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0266

Period	5 min.	10 min	15 min	30 min	60 min	6 hr	12 hr	24 hr
2 yr	0.49		1.06	1.46	1.96	2.9	3.25	3.85
5 yr				1.81	2.3	3.66	4.3	5.05
10 yr				2.1	2.64	4.3	5	5.8
25 yr				2.35	3.04	4.95	5.85	6.7
50 yr				2.6	3.36	5.5	6.5	7.5
100 yr	0.821		1.82	2.92	4.06	6	7.25	8.3

Charleston

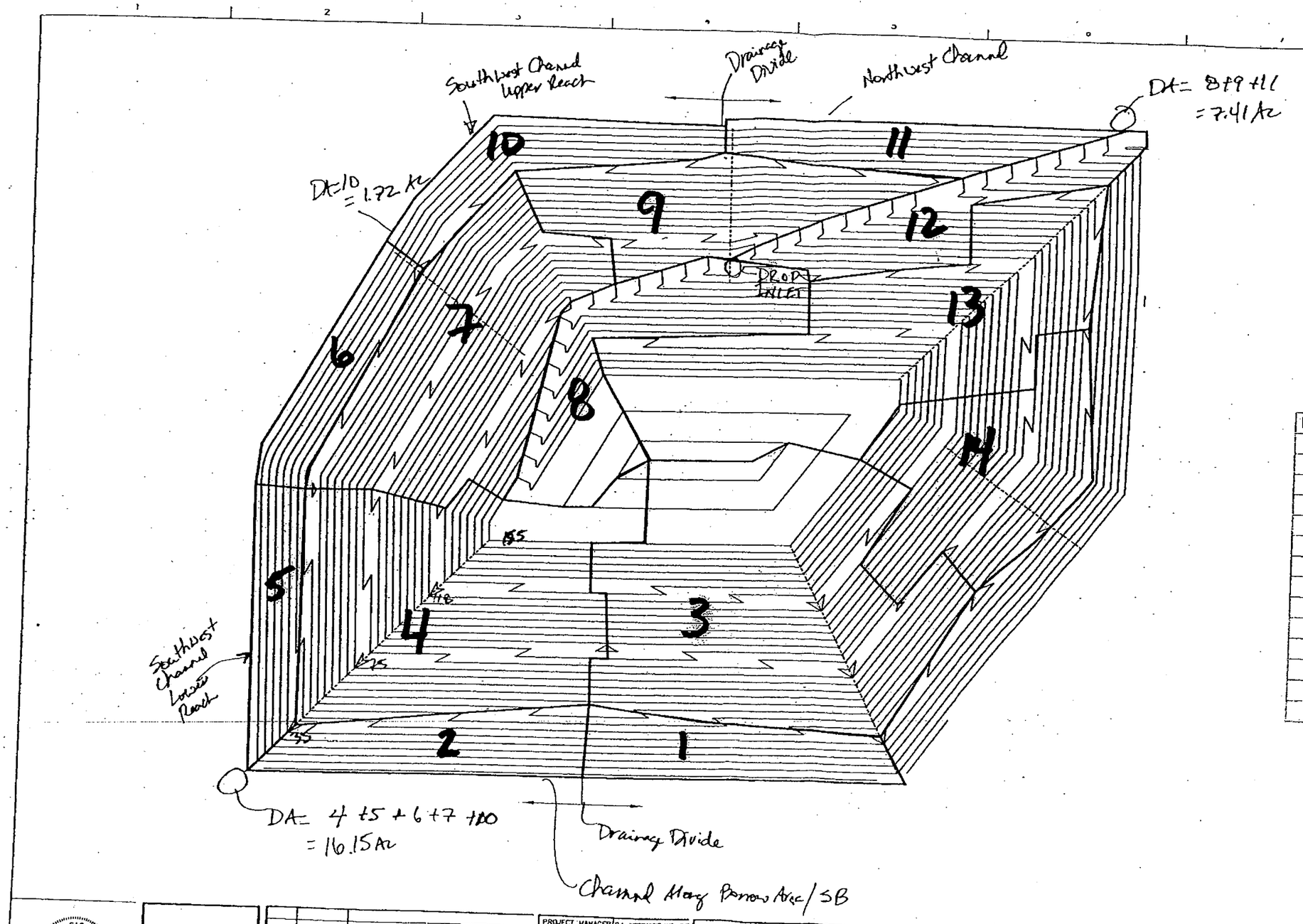
Return Period	5 min.	10 min	15 min	30 min	60 min	6 hr	12 hr	24 hr
2 yr	0.511		1.15	1.65	2.27	3.25	4	4.6
5 yr				2.05	2.62	4.2	5.1	5.9
10 yr				2.35	2.92	4.8	5.9	7
25 yr				2.65	3.35	5.6	6.75	8
50 yr				2.95	3.73	6.4	7.45	8.9
100 yr	0.795		1.88	3.14	4.34	7	8.5	10.2

Cherokee

Return Period	5 min.	10 min	15 min	30 min	60 min	6 hr	12 hr	24 hr
2 yr	0.464		0.96	1.27	1.76	2.6	3	3.4
5 yr				1.59	2.01	3.4	3.95	4.5
10 yr				1.82	2.31	3.9	4.45	5
25 yr				2.14	2.71	4.9	5	5.85
50 yr				2.34	3.01	5	5.75	6.75
100 yr	0.821		1.76	2.65	3.91	5.75	6.5	7.2

Chester

Return Period	5 min.	10 min	15 min	30 min	60 min	6 hr	12 hr	24 hr
2 yr	0.475		0.99	1.3	1.76	2.68	3	3.35
5 yr				1.65	2.1	3.32	3.95	4.35
10 yr				1.9	2.38	3.8	4.5	5.15
25 yr				2.19	2.78	4.75	5.1	5.9
50 yr				2.42	3.11	4.9	5.6	6.8



NOTES

1. PROPERTY LINE SURVEY CONDUCTED BY GENERAL ENGINEERING, APRIL 7, 2003.
2. AERIAL TOPOGRAPHY SURVEY BY CARTOGRAPHIC AERIAL MAPPING, INC., DATE OF PHOTOGRAPHY SEPT. 9, 2006.
3. INSTALL SLOPE DRAINS AS FILL PROGRESSES AS SHOWN ON C-05.

Location	Area (sf)	Area (ac)
1	76,997.8	1.77
2	79,394.4	1.82
3	354,695.7	8.14
4	295,996.3	6.80
5	54,348.4	1.25
6	57,230.5	1.31
7	220,698.3	5.07
8	132,358.7	3.04
9	126,380.5	2.90
10	74,862.9	1.72
11	63,936.2	1.47
12	85,035.1	1.95
13	298,558.2	6.85
14	160,143.7	3.68

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SOUTH CAROLINA — HDR ENGINEERING, INC. OF THE CAROLINAS — CERTIFICATE OF AUTHORIZATION

HDR

ISSUE	DATE	DESCRIPTION
A	07/07	ISSUED FOR SCDHEC APPROVAL

PROJECT MANAGER	P.A. WESTMORELAND, P.E.
DESIGN ENG.	G.M. WILLIAMS, E.I.
D.C.	E.A. WRIGHT, P.E.
CADD	
PROJECT NUMBER	000000000051678

C&D PERMIT 0102

Bees Ferry Landfill
Construction, Demolition and Land Clearing Debris Landfill
Permit Modification
Charleston County South Carolina

~~PROPOSED FINAL GRADES~~
DRAINAGE AREAS

FILENAME	00C-03
SCALE	1"=100'
SHEET	C-03

0268

SETTLEMENT

C&D PERMIT 0103

HDR Computation

Job No. 11613-51678-018

Project	Bees Ferry C&D Landfill	Computed PAW	Date 7/5/07
Subject	Permit Application	Checked MDP	Date 7/5/07
Task	Settlement	Sheet 1	Of 2

References:

1. Federal Highway Administration Settlement Analysis Method using SPT Blow count corrections.
2. Boring Logs from the Proposed Southern Greenville County Landfill Site Hydrogeologic Characterization Report, June 2001

Given:

$$\Delta H = H/C' \times \text{Log} \frac{P_o + \Delta P}{P_o}$$

ΔH = Settlement for the layer being evaluated.
H = Thickness of the layer being evaluated.
C' = Bearing Capacity Index (Taken from Figure 13)
P_o = height of soil above the layer being evaluated x unit weight of soil + 1/2 height of layer being evaluated x unit weight of material
ΔP = height of waste x unit weight of waste + fill height x unit weight of fill - cut depth x unit weight of soil

Calculation:

Step 1: Enter values for the height of landfill, the depth to groundwater, and the structural fill or cut depth for each location.

Step 2: Subdivide the boring log based on layers of similar materials, standard penetration test numbers, and the water level.

Step 3: Enter in the selected layer the thicknesses and average SPT counts onto the table.

Step 4: Select a unit weight of soil based on the soil type. For layers below the water level, the unit weight of water (62.4 pcf) should be subtracted from the soil unit weight.

Step 5: Use the calculated overburden pressure (Layer thickness times the unit weight above the midpoint of the layer being evaluated) to determine the SPT Correction Factor using Figure 12.

Step 6: Use the Corrected SPT Value, soil type, and Figure 13 to determine the Bearing Capacity Index.

Step 7: Determine the anticipated load due to the landfill at the boring location. Loading is based on the landfill height times the unit weight for waste plus or minus the fill or cut required to reach subgrade.

Step 8: Total loading includes the landfill load plus the overburden load above the layer being evaluated.

Step 9: Calculate settlement ΔH for each layer. Apply the reduction factor as recommended in the FHWA analysis method.

HDR Computation

[Job No. 11613-51678-018]

Project	Bees Ferry C&D Landfill	Computed	PAW	Date	7/5/07
Subject	Permit Application	Checked	MAP	Date	7/5/07
Task	Settlement	Sheet	2	Of	2

Objective:

Determine the differential settlement across the Landfill floors and the impact of settlement on the groundwater separation requirement.

References:

1. Federal Highway Administration, Settlement calculation for cohesionless soils using correction of SPT Blow counts.
2. Boring Logs from the Bees Ferry Landfill

Given:

$$\Delta H = H/C' \times \text{Log} \frac{P_o + \Delta P}{P_o}$$

ΔP= height of landfill x unit weight of waste + height of fill x unit weight of material - depth of cut x unit weight of material

Boring Log:	PZ-45
Ground Elev (ft):	13.84
SHGW Elev (ft):	12.2
Base Grade Elev (ft):	14.7
Final Grade Elev (ft):	37.5
Max. landfill height:	22.8
Water level:	3.00 Below groundsurface on boring log.
Fill Depth (ft):	0.9
Fill Unit Weight (kcf):	0.110
Cut Depth (ft):	0
Cut Unit Weight (kcf):	0.120
Unit Weight of Water (kcf):	0.0624
Unit Weight of Waste (kcf):	0.070
ΔP (ksf) =	1.691
REDUCTION FACTOR	0.67

Calculations:

Layer No.	Layer Thickness H (ft)	Depth to center of layer below subgrade z(ft)	Unit Weight of soil γ(kcf)	Overburden Pressure P_o (ksf)	SPT Correction Factor N'/N	SPT Value N	Corrected SPT Blow Count N'	Fig 13 Soil Type	Bearing Capacity Index C'	Loading under the landfill ΔP	$P_o+\Delta P$	Settlement ΔH (ft)	Groundwater Separation (ft)	After Settlement Groundwater Separation (ft)
PZ-45														
1	3	1.5	0.120	0.18	2.91	15	43.7	Sandy Clay	84	1.69	1.87	0.02	2.5	2.00
2*	5	5.5	0.120	0.50	2.00	15	30.0	Sandy Clay	65	1.69	2.19	0.08		
3*	4	10	0.115	0.75	1.60	7	11.2	Well Graded fine	43	1.69	2.44	0.31		
4*	2	13	0.110	0.91	1.40	32	44.8	Sandy Clay	86	1.69	2.60	0.09		
											Total	0.50		

* - Indicates layers below the ground water table.

Analysis:

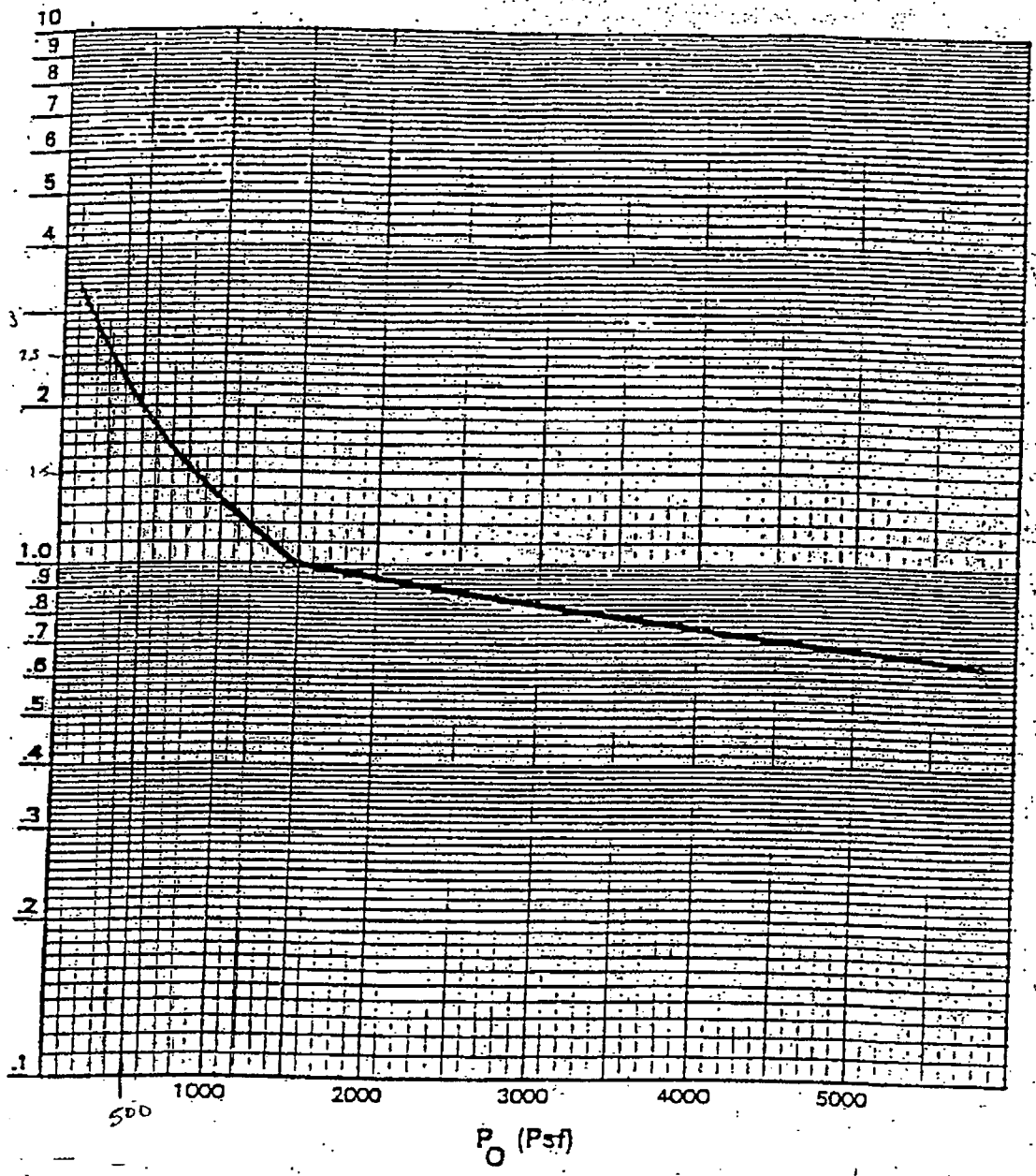
Based on these calculations the settlement does not effect the required separation for Groundwater.

C&D PERMIT 0105

0271

Cal

lement.xls

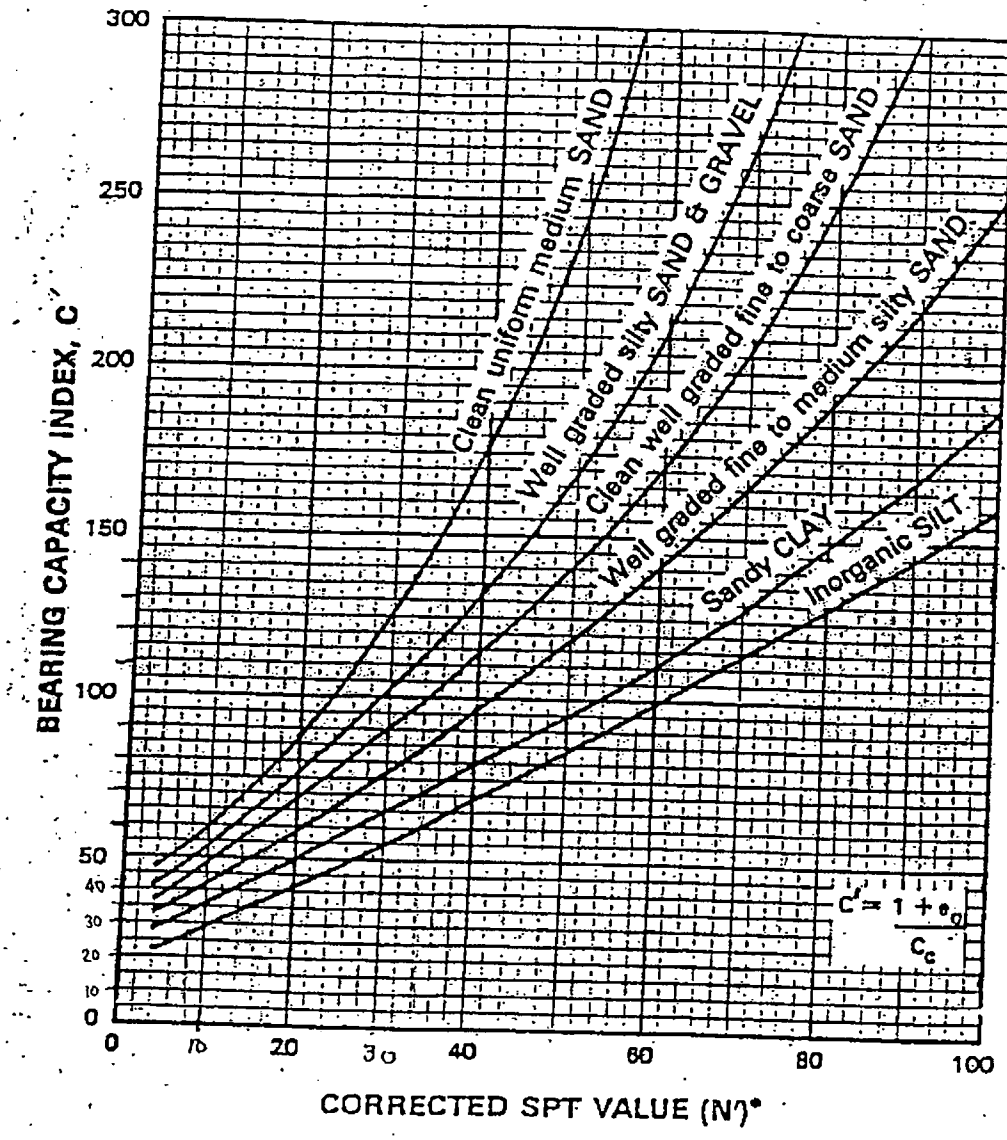


Where: N' = Corrected SPT Blow Count
N = SPT value
P_o = Existing effective vertical overburden pressure

Reference: Based on 1967, Bazaraa. The Use of Standard Penetration Test for Estimating Settlement of Shallow Foundation on Sand.

FIGURE 12 ***CORRECTING SPT (N) BLOW COUNTS***

C&D PERMIT 0106



'N'—SPT (N) Value Corrected for Overburden Pressure.

Reference: Hough, "Compressibility as a Basis for Soil Bearing Value" ASCE 1959

FIGURE 13

BEARING CAPACITY INDEX (C') VALUES FOR GRANULAR SOILS

C&D PERMIT 0107

0273

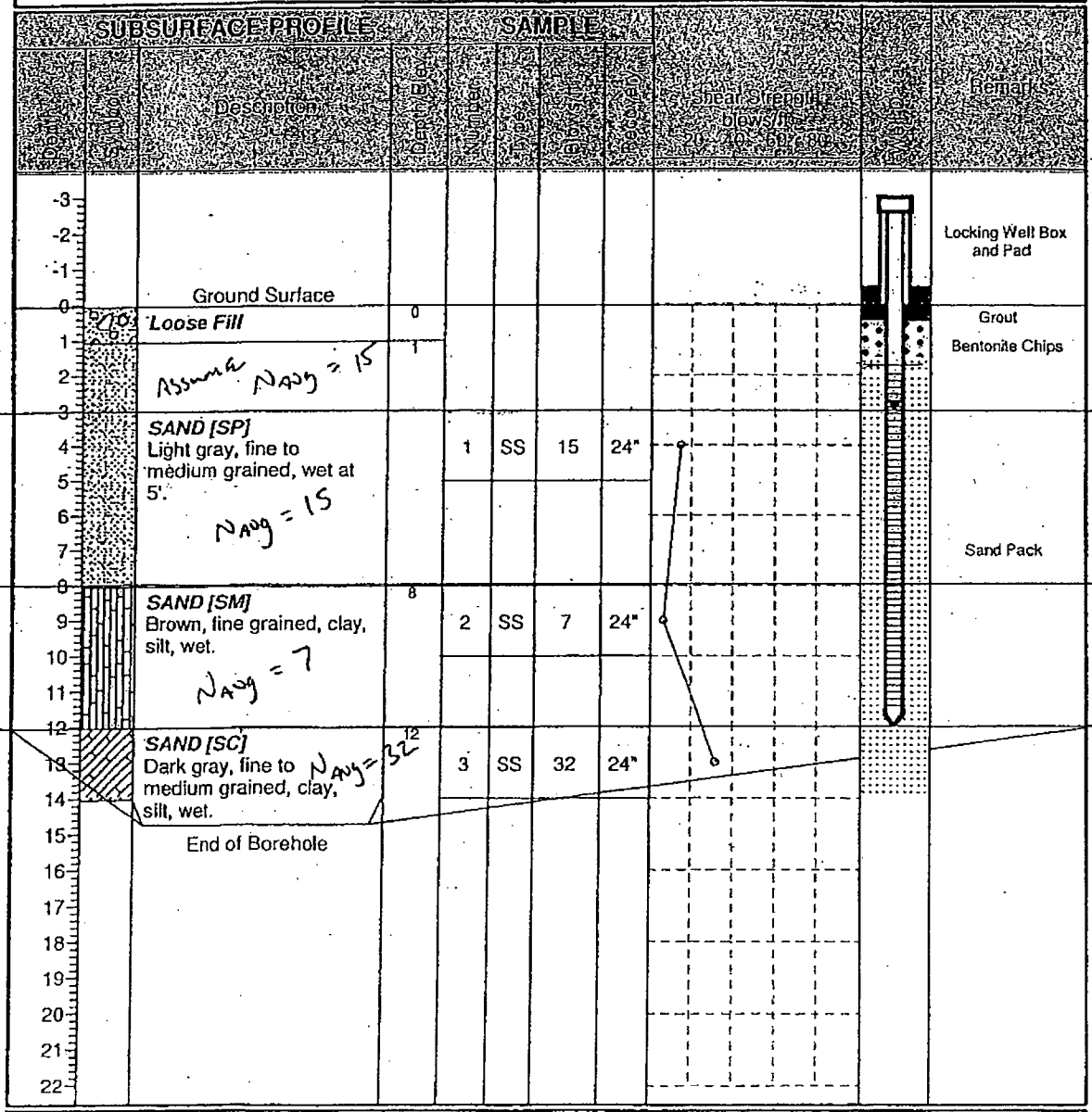
Geologist Log: PZ-45

HDR

Project: Bees Ferry Landfill | **Project No:** 11613-51678

Client: Charleston County | **Ground Elevation:** 13.84 | **Northing** 360,304.7537

Location: Charleston, SC | **Geologist:** Chris Randazzo | **Easting** 2,273,880.0563



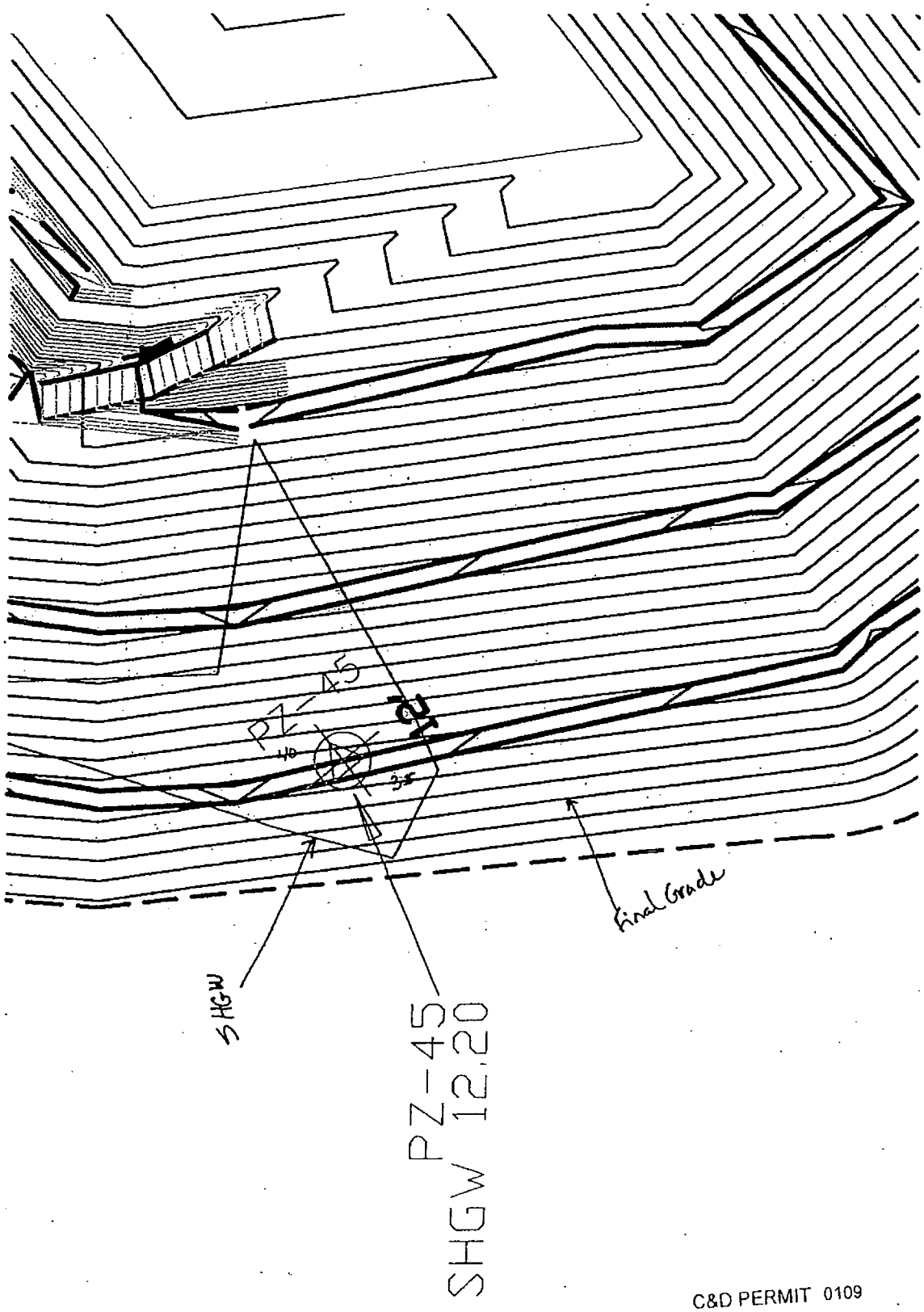
Drilled By: Carolina Drilling | Hole Size: 8"

Drill Method: Hollow Stem Augers | Top of Casing: 16.67

Drill Date: 5/29/2007 | Sheet: 1 of 1

HDR Engineering Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
www.hdrinc.com

C&D PERMIT 0108



C&D PERMIT 0109

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Table 35.10 Typical Values of Optimum Moisture Content and Suggested Relative Compactions (based on standard Proctor test)

class group symbol	description	range of maximum dry densities (lbm/ft³)	range of optimum moisture content (%)	recommended percentage of Proctor maximum (%) class[a] 1	2	3
GW	well-graded, clean gravels, gravel-sand mixtures	125–135	11–8	97	94	90
GP	poorly graded clean gravels, gravel-sand mixtures	115–125	14–11	97	94	90
GM	silty gravels, poorly graded gravel-sand silt	120–135	12–8	98	94	90
GC	clayey gravels, poorly graded gravel-sand-clay	115–130	14–9	98	94	90
SW	well-graded clean sands, gravelly sands	110–130	16–9	97	95	91
SP	poorly graded clean sands, sand-gravel mix	100–120	21–12	98	95	91
SM	silty sands, poorly graded sand-silt mix	110–125	16–11	98	95	91
SM-SC	sand-silt-clay mix with slightly plastic fines	110–130	15–11	99	96	92
SC	clayey sands, poorly graded sand-clay mix	105–125	19–11	99	96	92
ML	inorganic silts and clayey silts	95–120	24–12	100	96	92
ML-CL	mixture of organic silt and clay	100–120	22–12	100	96	92
CL	inorganic clays of low-to-medium plasticity	95–120	24–12	100	96	92
OL	organic silts and silt-clays, low plasticity	80–100	33–21	–	96	93
MH	inorganic clayey silts, elastic silts	70–95	40–24	–	97	93
CH	inorganic clays of high plasticity	75–105	36–19	–	–	93
OH	organic and silty clays	65–100	45–21	–	97	93

(Multiply lbm/ft³ by 16.02 to obtain kg/m³.)
[a] Class 1 uses include the upper 9 ft (2.7 m) of fills supporting one- and two-story buildings, the upper 3 ft (0.9 m) of subgrade under pavements, and the upper 1 ft (0.3 m) of subgrade under floors. Class 2 uses include deeper parts of fills under buildings and pavements as well as earth dams. All other fills requiring some degree of strength or incompressibility are classified as class 3.

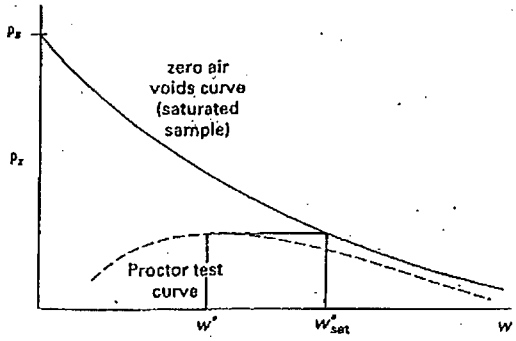


Figure 35.7 Typical Zero Air Voids Curve

The *zero air voids density* (i.e., *dry unit weight at zero air voids*) is the ratio of the mass of the solids to the total volume if the sample is fully compacted (i.e., there is no air in the voids).

$$\rho_z = \frac{m_s}{V_w + V_s} \qquad 35.20$$

The theoretical dry density of the zero air voids curve is calculated from Eq. 35.21.

$$\rho_z = \frac{\rho_w}{w + \frac{1}{SG}} \qquad 35.21$$

The maximum value of the zero air voids density occurs at $w = 0$. At that point, the maximum zero air voids density is equal to the density of the solid itself (as calculated from the solid specific gravity).

$$\rho_s = (SG)\rho_w \qquad 35.22$$

ρ_s and ρ_d^* are not the same, however, since air voids exist in the ρ_d^* case and ρ_d^* occurs at w^*.

Example 35.5

A Proctor test using a $^1/_{30}$ ft³ (0.9443 L) mold is performed on a sample of soil.

test no.	sample net mass (lbm)	sample net mass (kg)	water content (%)
1	4.28	1.941	7.3
2	4.52	2.050	9.7
3	4.60	2.087	11.0
4	4.55	2.064	12.8
5	4.50	2.041	14.4

If 0.032 ft³ (0.00091 m³) of compacted soil tested at a construction site had a mass of 3.87 lbm (1.755 kg) wet and 3.74 lbm (1.696 kg) dry, what is the percentage of compaction?

C&D PERMIT 0110

0276

VOLUME & LIFESPAN ESTIMATES

C&D PERMIT 0111

Tonnage Data

Month - Year	FY Total Accepted C&D (Tonnage)	Monthly Total Accepted C&D (Tonnage)	Partial Monthly Tonnage Prior to Survey	Monthly C&D Tonnage Placed In MSW LF	FY C&D Tonnage Placed In MSW LF	Monthly C&D Tonnage Placed in C&D LF	FY Tonnage Placed in C&D LF	Cummulative C&D Tonnage Placed In C&D LF	Cummulative Accepted Total C&D Tonnage	12 Month Rolling Average of C&D Accepted
Jul-98		1,655.31				1,655.31		1,655.31	1,655.31	
Aug-98		684.84				684.84		2,340.15	2,340.15	
Sep-98		179.40				179.40		2,519.55	2,519.55	
Oct-98		154.16				154.16		2,673.71	2,673.71	
Nov-98		1,364.61				1,364.61		4,038.32	4,038.32	
Dec-98		2,305.23				2,305.23		6,343.55	6,343.55	
Jan-99		2,623.10				2,623.10		8,966.65	8,966.65	
Feb-99		3,465.63				3,465.63		12,432.28	12,432.28	
Mar-99		4,809.34				4,809.34		17,241.62	17,241.62	
Apr-99		8,481.72				8,481.72		25,723.34	25,723.34	
May-99		9,425.09				9,425.09		35,148.43	35,148.43	
Jun-99		5,957.38				5,957.38		41,105.81	41,105.81	41,106
Jul-99		4,530.50				4,530.50		45,636.31	45,636.31	43,981
Aug-99		4,650.50				4,650.50		50,286.81	50,286.81	47,947
Sep-99		4,730.33				4,730.33		55,017.14	55,017.14	52,498
Oct-99		5,396.29				5,396.29		60,413.43	60,413.43	57,740
Nov-99		12,202.17				12,202.17		72,615.60	72,615.60	68,577
Dec-99		11,241.18				11,241.18		83,856.78	83,856.78	77,513
Jan-00		8,662.63				8,662.63		92,519.41	92,519.41	83,553
Feb-00		7,529.85				7,529.85		100,049.26	100,049.26	87,617
Mar-00		13,278.70				13,278.70		113,327.96	113,327.96	96,086
Apr-00		13,648.29				13,648.29		126,976.25	126,976.25	101,253
May-00		13,181.24				13,181.24		140,157.49	140,157.49	105,009
Jun-00		12,861.34				12,861.34		153,018.83	153,018.83	111,913
Jul-00		10,555.48				10,555.48		163,574.31	163,574.31	117,938
Aug-00		11,993.35				11,993.35		175,567.66	175,567.66	125,281
Sep-00		10,077.12				10,077.12		185,644.78	185,644.78	130,628
Oct-00		10,547.30				10,547.30		196,192.08	196,192.08	135,779
Nov-00		11,661.04				11,661.04		207,853.12	207,853.12	135,238
Dec-00		7,229.58				7,229.58		215,082.70	215,082.70	131,226
Jan-01		7,317.91				7,317.91		222,400.61	222,400.61	129,881
Feb-01		7,117.67				7,117.67		229,518.28	229,518.28	129,469
Mar-01		12,115.91				12,115.91		241,634.19	241,634.19	128,306
Apr-01		11,729.94				11,729.94		253,364.13	253,364.13	128,388
May-01		11,719.71				11,719.71		265,083.84	265,083.84	124,926
Jun-01		9,607.90				9,607.90		274,691.74	274,691.74	121,673
Jul-01		5,719.41				5,719.41		280,411.15	280,411.15	116,837
Aug-01		6,933.69				6,933.69		287,344.84	287,344.84	111,777
Sep-01		6,558.95				6,558.95		293,903.79	293,903.79	106,259
Oct-01		10,243.45				10,243.45		304,147.24	304,147.24	107,955
Nov-01		8,741.99				8,741.99		312,889.23	312,889.23	105,036
Dec-01		6,265.97				6,265.97		319,155.20	319,155.20	104,073
Jan-02		9,113.94				9,113.94		328,269.14	328,269.14	105,869
Feb-02		7,264.16				7,264.16		335,533.30	335,533.30	106,015
Mar-02		7,255.59				7,255.59		342,788.89	342,788.89	101,155
Apr-02		14,184.56				14,184.56		356,973.45	356,973.45	103,609
May-02		13,515.30				13,515.30		370,488.75	370,488.75	105,405
Jun-02	107,404.19	11,607.18				11,607.18	107,404.19	382,095.93	382,095.93	107,404
Jul-02		11,048.78				11,048.78		393,144.71	393,144.71	112,734
Aug-02		7,706.03				7,706.03		400,850.74	400,850.74	113,506
Sep-02		7,778.11				7,778.11		408,628.85	408,628.85	114,725
Oct-02		8,951.77				8,951.77		417,580.62	417,580.62	113,433
Nov-02		3,647.03				3,647.03		421,227.65	421,227.65	108,338
Dec-02		1,284.67				1,284.67		422,512.32	422,512.32	103,357
Jan-03		9,754.58				9,754.58		432,266.90	432,266.90	103,998
Feb-03		10,394.00	1,618.00			10,394.00		442,660.90	442,660.90	107,128
Mar-03		11,600.04				11,600.04		454,260.94	454,260.94	111,472
Apr-03		13,841.00				13,841.00		468,101.94	468,101.94	111,128
May-03		12,591.77				12,591.77		480,693.71	480,693.71	110,205
Jun-03	110,151.27	11,553.49				11,553.49	110,151.27	492,247.20	492,247.20	110,151

FY 2001

FY 2002

FY 2003

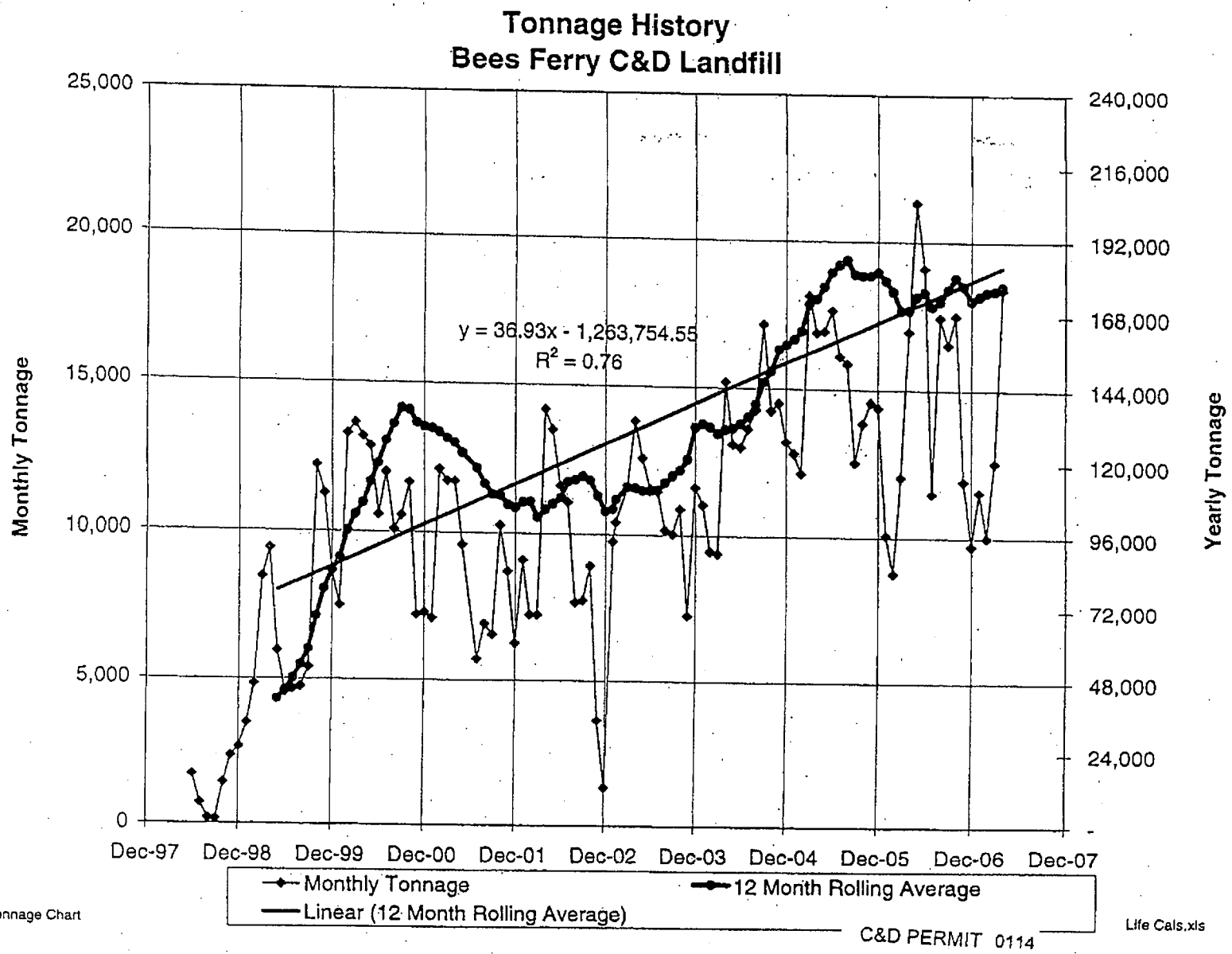
Survey Feb. 11th

C&D PERMIT 0112

	Month - Year	FY Total Accepted C&D (Tonnage)	Monthly Total Accepted C&D (Tonnage)	Partial Monthly Tonnage Prior to Survey	Monthly C&D Tonnage Placed in MSW LF	FY C&D Tonnage Placed in MSW LF	Monthly C&D Tonnage Placed in C&D LF	FY Tonnage Placed in C&D LF	Cummulative C&D Tonnage Placed in C&D LF	Cummulative Accepted Total C&D Tonnage	12 Month Rolling Average C&D Accepted
FY 2004	Jul-03		11,454.54				11,454.54		503,701.74	503,701.74	110,557
	Aug-03		10,166.23				10,166.23		513,867.97	513,867.97	113,017
	Sep-03		10,029.74				10,029.74		523,897.71	523,897.71	115,269
	Oct-03		10,866.34				10,866.34		534,764.05	534,764.05	117,183
	Nov-03		7,276.12				7,276.12		542,040.17	542,040.17	120,813
	Dec-03		11,627.89		2.71		11,625.18		553,665.35	553,670.77	131,156
	Jan-04		11,022.15				11,022.15		564,687.50	564,692.92	132,423
	Feb-04		9,477.71		84.52		9,393.19		574,080.69	574,255.15	131,507
	Mar-04		9,412.61		7,796.04		1,616.57		575,697.26	591,463.80	129,320
	Apr-04		15,209.12		7,336.11		7,873.01		583,570.27	614,009.03	130,688
	May-04		13,121.11		7,625.20		5,495.91		589,066.18	634,755.34	131,217
	Jun-04	132,681.35	13,017.79		2,962.19	25,806.77	10,055.60	106,874.58	599,121.78	650,735.32	132,681
FY 2005	Jul-04		13,653.46				13,653.46		612,775.24	664,388.78	134,860
	Aug-04		14,289.02		6,341.96		7,947.06		620,722.30	685,019.76	139,003
	Sep-04		17,189.15		6,480.76		10,708.39		631,430.69	708,689.67	146,162
	Oct-04		14,264.56		7,169.88		7,094.70		638,525.39	730,124.13	149,561
Survey Nov. 15th	Nov-04		14,526.68	3,106.00			14,526.68		653,052.07	744,650.81	158,811
	Dec-04		13,237.84				13,237.84		666,289.91	757,888.65	158,421
	Jan-05		12,839.72		2,433.96		10,405.76		676,695.67	773,162.33	160,239
	Feb-05		12,161.31		6,402.26		5,759.05		682,454.72	791,725.90	162,922
	Mar-05		18,172.48		10,068.49		8,103.99		690,558.71	819,966.87	171,682
	Apr-05		16,929.30		7,140.47		9,788.83		700,347.54	844,036.64	173,402
	May-05		16,976.15		6,384.37		10,611.78		710,959.32	867,377.16	177,257
	Jun-05	181,911.37	17,671.68		7,511.24	59,913.39	10,160.44	121,997.98	721,119.76	892,560.08	181,911
FY 2006	Jul-05		16,113.23		17.58		16,095.65		737,215.41	908,690.89	184,371
	Aug-05		15,852.94				15,852.94		753,068.35	924,543.83	185,935
	Sep-05		12,558.61				12,558.61		765,626.96	937,102.44	181,305
	Oct-05		13,880.95				13,880.95		779,507.91	950,983.39	180,921
	Nov-05		14,577.68				14,577.68		794,085.59	965,561.07	180,972
	Dec-05		14,404.97				14,404.97		808,490.56	979,966.04	182,139
	Jan-06		10,081.17				10,081.17		818,571.73	990,047.21	179
	Feb-06		8,801.43				8,801.43		827,373.16	998,848.64	176
	Mar-06		12,072.59				12,072.59		839,445.75	1,010,921.23	169,921
	Apr-06		16,993.40		2,644.41		14,348.99		853,794.74	1,030,550.04	169,985
	May-06		21,350.50		6,477.65		14,872.85		868,667.59	1,058,387.19	174,359
	Jun-06	175,795.43	19,107.96		6,577.71	15,717.35	12,530.25	160,078.08	881,197.84	1,084,072.86	175,795
FY 2007	Jul-06		11,507.58				11,507.58		892,705.42	1,095,580.44	171,190
	Aug-06		17,454.12				17,454.12		910,159.54	1,113,034.56	172,791
Survey Sept. 9th	Sep-06		16,544.32	2,940.00			16,544.32		926,703.86	1,129,578.88	176,777
	Oct-06		17,522.12				17,522.12		944,225.98	1,147,101.00	180,418
	Nov-06		11,952.23				11,952.23		956,178.21	1,159,053.23	177,792
	Dec-06		9,733.24				9,733.24		965,911.45	1,168,786.47	173,121
	Jan-07		11,572.00				11,572.00		977,483.45	1,180,358.47	174,611
	Feb-07		10,011.00				10,011.00		987,494.45	1,190,369.47	175,821
	Mar-07		12,576.00				12,578.00		1,000,072.45	1,202,947.47	176,328
	Apr-07		18,401.00				18,401.00		1,018,473.45	1,221,348.47	177,734

Assumptions
Historic tonnages provided by Charleston County

C&D PERMIT 0113



Tonnage Chart

C&D PERMIT 0114

Life Cals.xls

0280

HDR Computation

Job No. 11613-51678-018

Project:	Bees Ferry Landfill	Computed:	Date: 7-6-07
Subject:	C&D Lateral and Vertical Expansion	Checked: PAL	Date: 7-6-07
Task:	Volume & Life Span Estimates	Sheet:	Of:

Objective Estimate the life expectancy of the C&D Landfill

Capacity Consumed Calculations

Date of Topo Survey	Total Volume Used (cy)	Total Waste Disposed (tons)	Period In-Place Density (lbs/cy)	To Date In-Place Density (lbs/cy)	Period Volume Usage (cy/day)	To Date Volume Usage (cy/day)	Period Length (days)	Period In-Place Density (tons/cy)	To Date In-Place Density (tons/cy)
1-Jul-98	0	0							
11-Feb-03	765,210	433,885	1,134	1,134	454	454	1,686	0.57	0.57
15-Nov-04	1,065,890	641,631	1,382	1,204	468	1,658	643	0.69	0.60
9-Sep-06	1,493,104	913,100	1,271	1,223	644	2,252	663	0.64	0.61

Bottom surface of the existing landfill area is an assumed 11' bottom elevation.

Capacity Remaining

1997 Permitted Capacity 2,490,000
Proposed Permit Capacity (cy) = [redacted]
Remaining Capacity (cy) = 3,914,012 as of 9-Sep-6

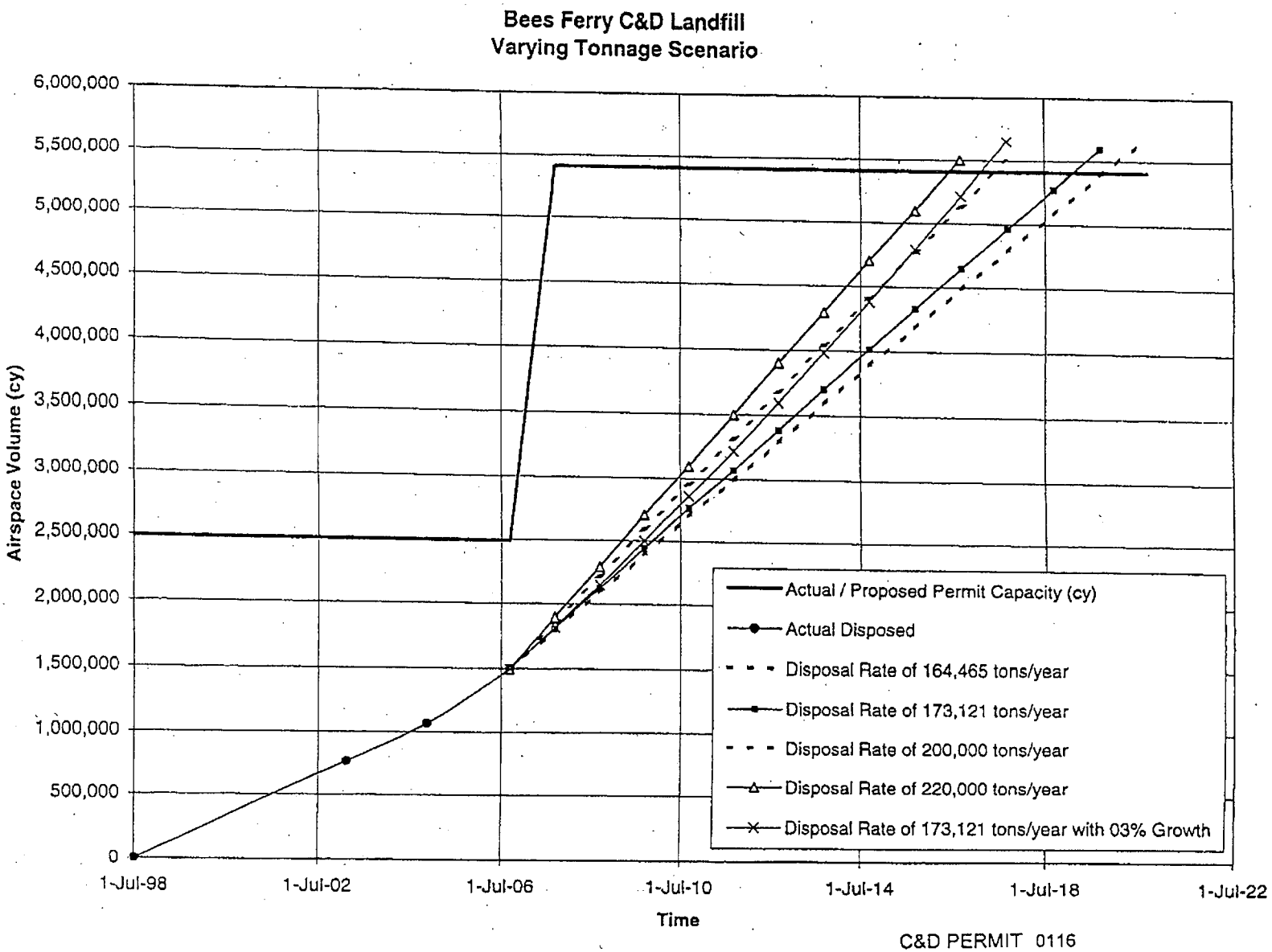
Calculate Operational Time of the Expansion

Assumed Density	0.55	tons/cy	Lower than estimates of actual density.
Disposal Rate as of 12-31-06	173,121	tons/yr	
Demonstration of Need 5-25-07	200,000	tons/yr	
Disposal Growth Rate	3%	Assumed	

Required Volumes (cy) @ density of 0.55 tons/cy

Actual / Proposed Permit Capacity (cy)	As of	95% Disposal Rate of 164,465 tons/year	Disposal Rate of 173,121 tons/year	Disposal Rate of 200,000 tons/year	110% Disposal Rate of 220,000 tons/year	Disposal Rate of 173,121 tons/year with 03% Growth	Comments
2,490,000	1-Jul-98	0	0	0	0	0	Estimated Volumes
2,490,000	9-Sep-06	1,493,104	1,493,104	1,493,104	1,493,104	1,493,104	Estimated Volumes
5,407,116	9-Sep-07	1,792,675	1,808,442	1,857,403	1,893,832	1,817,902	
5,407,116	8-Sep-08	2,092,246	2,123,780	2,221,701	2,294,561	2,152,444	
5,407,116	8-Sep-09	2,391,818	2,439,118	2,586,000	2,695,290	2,497,023	
5,407,116	9-Sep-10	2,691,389	2,754,457	2,950,299	3,096,018	2,851,939	
5,407,116	9-Sep-11	2,990,960	3,069,795	3,314,597	3,496,747	3,217,502	
5,407,116	8-Sep-12	3,290,531	3,385,133	3,678,896	3,897,475	3,594,032	
5,407,116	8-Sep-13	3,590,103	3,700,471	4,043,195	4,298,204	3,981,859	
5,407,116	9-Sep-14	3,889,674	4,015,809	4,407,494	4,698,933	4,381,320	
5,407,116	9-Sep-15	4,189,245	4,331,147	4,771,792	5,099,661	4,792,764	
5,407,116	8-Sep-16	4,488,816	4,646,486	5,136,091	5,500,390	5,216,553	
5,407,116	8-Sep-17	4,788,388	4,961,824	5,500,390		5,653,054	
5,407,116	9-Sep-18	5,087,959	5,277,162				
5,407,116	9-Sep-19	5,387,530	5,592,500				
5,407,116	8-Sep-20	5,687,102					
Estimated Closure Date		Oct-19	Feb-19	Jun-17	Jun-16	Feb-17	

C&D PERMIT 0115



C&D PERMIT 0116

Vary Tons

Life Cals.xls

0282

SLOPE STABILITY EVALUATION

C&D PERMIT 0117

RICHARDSON SMITH GARDNER & ASSOCIATES
Engineering and Geological Services

June 7, 2007

Philip Westmoreland, P.E.
HDR Engineering, Inc.
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202-5004

RE: Bees Ferry C&D Landfill Expansion
Stability Analysis
HDR Project No. 11613-51678-018

Dear Philip:

This report was prepared in response to your May 4, 2007 letter requesting a stability evaluation for the proposed lateral and vertical expansion of the referenced C&D landfill facility. This report relies in part upon earlier work that we performed[1] for HDR at this site with respect to expansion of the MSW landfill.

Seismic Design Criteria

Previously[1], two key seismic evaluation criteria were evaluated for this site: Liquefaction potential and development of design accelerations. The liquefaction evaluation showed that a long term potential for liquefaction exists in limited loose silty sands that lay above the upper Cooper Marl (UCM) formation, below the water table, and are located at or beyond the perimeter of the proposed landfills. Similar deposits located below the proposed footprint of the landfill will be precluded from liquefaction by the high normal loads generated by the waste mass itself. That portion of the proposed footprint that potentially may require stabilization is evaluated in the stability analysis presented herein. Thus, it is not necessary to evaluate or mitigate liquefaction potential for a significant portion of the C&D landfill footprint.

Reflecting the previous evaluation, two pseudo static design accelerations were used in the stability evaluations:

- A horizontal acceleration of 0.25g reflecting the International building Code (IBC) design spectra modified for the increased damping that occurs within a waste mass under strain and at the lowest estimated fundamental frequency of the completed landfill. This level of acceleration was evaluated to demonstrate a minimum factor of safety of 1.3.

[1] Seismic Evaluation – Bees Ferry MSW Landfill, prepared by G.N. Richardson & Associates, now Richardson Smith Gardner & Associates, February, 2004.

C&D PERMIT 0118

- A horizontal acceleration of **0.40g** reflecting one half of the peak horizontal ground acceleration predicted by the USGS National Seismic Risk map. This level of acceleration was evaluated to demonstrate a minimum factor of safety of **1.0** reflecting the original EPA seismic criterion[2] .

Both design accelerations reflect a 2475-year return period event which satisfies Federal Subtitle D criterion..

Seismic Stability Evaluation

The critical section for the stability evaluation reflects the full build out of the waste mass (HDR Drawing C-03) and the maximum excavation of the borrow area just east of the proposed C&D expansion (HDR Drawing G-01). Both HDR drawings are attached for reference. A section through the eastern slope of the full waste build out and the western slope of the borrow area was conservatively modeled to include 4H:1V side slopes on the waste mass and 2.5H:1V side slopes on the borrow excavation slopes. This section line is shown on the HDR Drawing C-01 attached. The access ramp on the western slope of the borrow pit was conservatively neglected and both dewatered borrow conditions and full 'storm water pond' conditions were evaluated.

Material properties used in the stability evaluations are shown in the table below. The in situ properties of natural soils were obtained from the Supplemental Geotechnical Investigation by WPC.[3] The 'Liquefied' sand reflects the dramatic reduction in strength that occurs as loose sand liquefies.

Material Description	Total Unit Weight, pcf	Saturated Unit Weight, pcf	Cohesion psf	Friction Angle degrees
Sand	125	125	0.0	30.0
Liquefied Sand	125	125	0.0	5.0
Clay	109	109	600	0.0
Upper Copper Marl	125	125	2000	30.0
C&D waste	55	55	100	30

The physical properties of the C&D waste were very conservatively modeled by slightly reducing the cohesion strength previously assumed for municipal solid waste and adjusting the unit weight to reflect approximately 1,500 lbs/cubic yard that is commonly achieved in these facilities. The use of 30° is very conservative since the observed angle of repose of this material can exceed 45°.

[2] Richardson, G.N., Kavazanjian, E., and N. Matasovi (1995), RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities, EPA/600/R-95/051, U.S. Environmental Protection Agency, Washington, D.C.

[3] Supplemental Geotechnical Investigation, Bees Ferry Landfill, Charleston, South Carolina, WPC Project CHS2-03-095, Report by WPC to HDR, July 15, 2003.

Silty Sands above UCM ----- The stability analyses were performed in a similar manner as the previous stability study for the MSW landfill. The slope stability analyses for the landfill were obtained using the computer program STABL6H, a computer program developed by Purdue University. Both block (along liner) and circular failure surfaces were assumed for the evaluation. The depth of circular failure surfaces is limited by the presence of underlying upper CMF. Failure surfaces were not taken into the highly cemented lower Cooper Marl but were allowed to penetrate the weaker upper Cooper Marl (UCM). The results of these analyses are tabulated below and presented in Attachment 1. Note that the level of water in the pond did not influence the stability factor of safety. A complete printout for the last case (Beefer12.pl2) is provided to enable verification of analysis geometry and other considerations. All of the calculated factors of safety are acceptable.

Silty Sands above the UCM

File Number	Description of Stability Concerns	Pond Status	Acceleration g	Factor of Safety
beefer01.pl2	Shallow circular failure	Full	0.0	5.40
beefer02.pl2	Shallow circular failure	Full	0.25	1.81
beefer03.pl2	Shallow circular failure	Full	0.40	1.27
beefer04.pl2	Shallow circular failure	Empty	0.0	5.40
beefer05.pl2	Shallow circular failure	Empty	0.25	1.81
beefer06.pl2	Shallow circular failure	Empty	0.40	1.27
beefer07.pl2	Deep circular failure	Empty	0.0	4.69
beefer08.pl2	Deep circular failure	Empty	0.25	1.70
beefer09.pl2	Deep circular failure	Empty	0.40	1.21
Beefer10.pl2	Deep circular failure	Full	0.0	4.69
Beefer11.pl2	Deep circular failure	Full	0.25	1.70
Beefer12.pl2	Deep circular failure	Full	0.40	1.21

Soft Clay above UCM ---- The WPC report indicates that the silty sands assumed above the UCM can in places be replaced with soft clays. Analyses performed substituting the soft clay for the silty sand above the UCM as tabulated below and are summarized in Attachment 2. Pond water levels do not influence the stability factor of safety for the soft clay layer modeled. So only full pond conditions were evaluated.

Soft Clay Above the UCM

File Number	Description of Stability Concerns	Pond Status	Acceleration g	Factor of Safety
beefer20.pl2	Shallow circular failure	Full	0.0	3.82
Beefer21.pl2	Shallow circular failure	Full	0.25	*1.14/1.73*
Beefer22.pl2	Shallow circular failure	Full	0.40	*0.78/1.21*
Beefer23.pl2	Deep circular failure	Full	0.0	4.70
Beefer24.pl2	Deep circular failure	Full	0.25	1.68
Beefer25.pl2	Deep circular failure	Full	0.40	1.19

The factors of safety for shallow failure circles are not acceptable for either seismic loading condition when the soft clays extend beneath the adjacent roadway. However, the factors of safety are adequate if soft clays are removed from beneath the roadways and replaced with competent sands. This means that significant soft clay deposits within 150-feet of the western boundary of the borrow pit/stormwater pond, e.g. beneath the roadway subgrade, should be removed and replaced with competent sands. It may be reasonable to do this when the borrow pit is in operation and the groundwater is drawn down.

Block Failure Above UCM ---- Several stability analyses were performed using a block failure immediately above the UCM. These evaluations are summarized below and indicate that the soft clays will not be acceptable in the zone immediately west of the borrow pit/stormwater pond. This is the same problem faced with shallow circular failure surfaces so it does not introduce additional field remediation criteria.

Block Failure Immediately Above the UCM

File Number	Description of Stability Concerns	Pond Status	Acceleration g	Factor of Safety
Beefer16.pl2	Silty Sand above UCM	Full	0.40	1.32
Beefer18.pl2	Soft Clay above UCM	Full	0.40	*0.65*

Liquefaction in Silty Sands Above UCM ---- As reviewed in our previous report[1], there is a potential for liquefaction of low blow count (Standard Penetration Test) silty sands that lay above the UCM and below the water table. A block stability evaluation was performed to determine how large a block of waste would be influenced by such a failure. This evaluation is presented in Attachment 4 and indicates that acceptable performance will be obtained if the zone 150-feet of the west of the borrow pit/stormwater pond contains only competent sands.

Maximum Final Cover Profile ---- Final analyses were performed for deep and shallow failure conditions assuming a 3H:1V side slope and a maximum elevation of 173-ft for the C&D facility. These stability evaluations, shown in Attachment 5, show that acceptable seismic factors of safety can be obtained with this final cover profile if the zones of weak clays or potential liquefaction of the silty sands is minimized as previously discussed. Thus, final cover profiles are not limited by stability considerations.

Maximum Final Cover Profile

File Number	Description of Stability Concerns	Pond Status	Acceleration g	Factor of Safety
Beefer15.pl2	Deep Failure – 3H:1V slopes	Full	0.40	1.16
Beefer32.pl2	Deep Failure – 3H:1V slopes	Full	0.25	1.60
Beefer31.pl2	Shallow Failure – 3H:1V slopes	Full	0.40	1.49

Summary

Satisfactory stability of the proposed C&D lateral expansion is predicated of stabilizing zones of soft clays or liquefiable silty sands that lie below the water table and within a 150-ft wide zone west of the borrow pit/stormwater pond. A similar stabilization program should be implemented for the balance of the proposed C&D landfill perimeter from the toe of waste to approximately 150-ft outward of the toe. It is my opinion that pockets of soft clays or very loose sands less than 50-ft in horizontal extent can be ignored and do not require removal and/or stabilization.

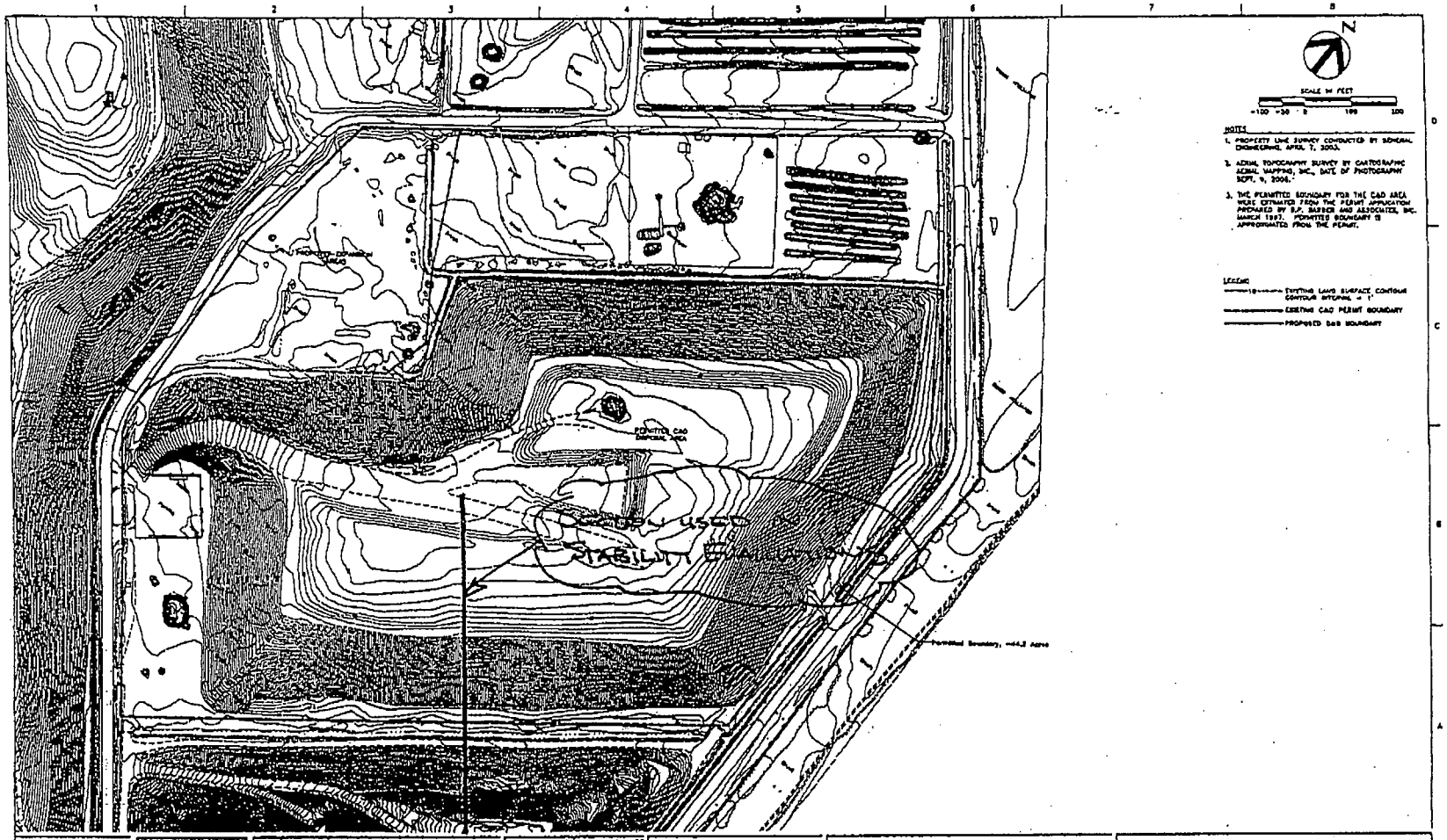
RSG appreciates this opportunity to work with HDR Engineering.

Cordially,
Richardson Smith Gardner & Associates

Gregory N. Richardson, Ph.D., P.E.



C&D PERMIT 0122



HDR

ISSUE	DATE	DESCRIPTION
2	05/07	ISSUED FOR SWCC APPROVAL

PROJECT MANAGER	K.A. WETHERBURN, P.E.
DESIGN ENG.	E.M. WILLIAMS, E.I.
D.C.	C.A. VINSANT, P.E.
CADD	
PROJECT NUMBER	000000000091716

Bees Ferry Landfill
C&D Landfill Expansion

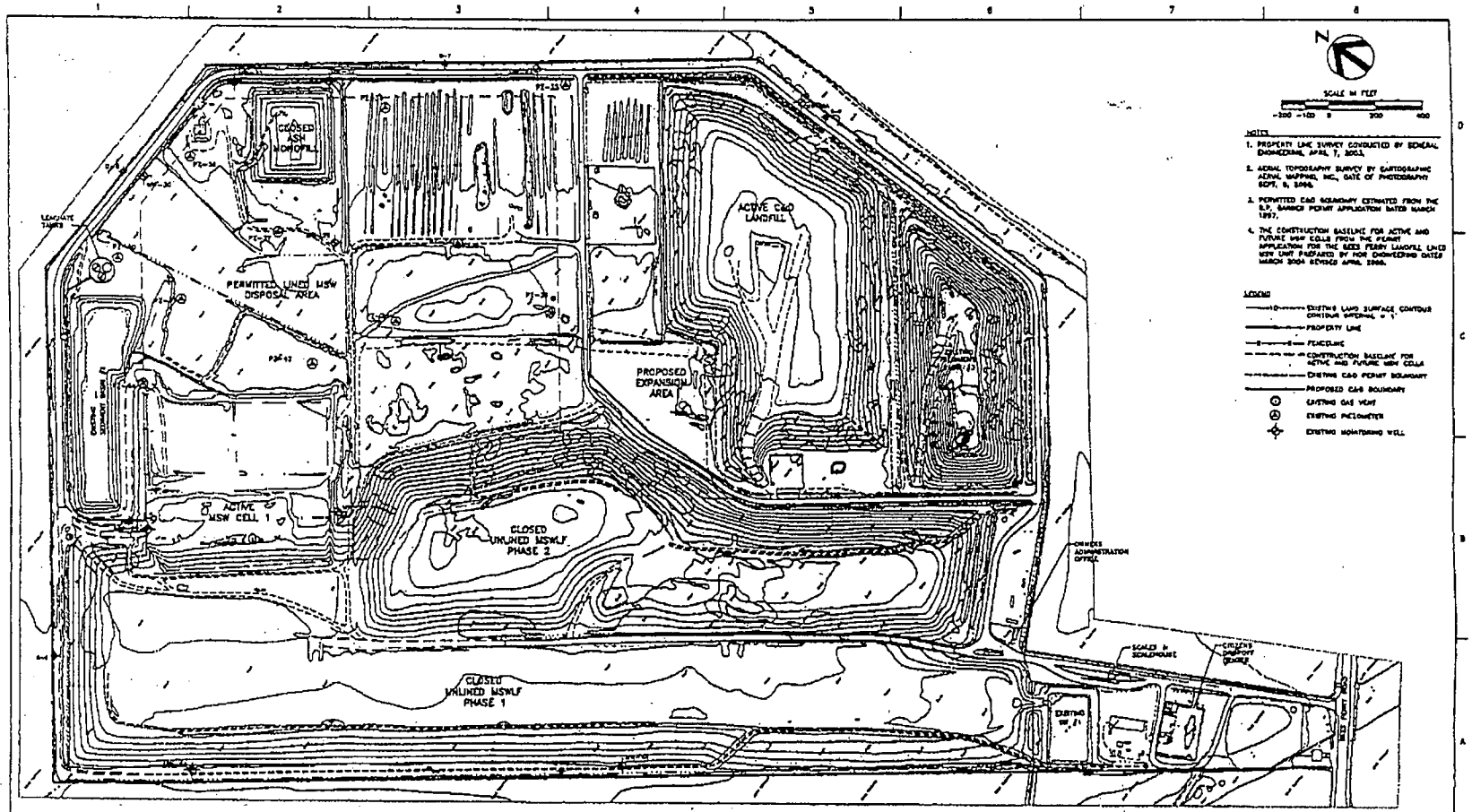
Charleston County — South Carolina

Existing Conditions

FILENAME: BDC-01
SCALE: 1"=100'
SHEET: C-01

0289

C&D PERMIT 0123



HDR

ISSUE	DATE	DESCRIPTION
A	01/07	ISSUED FOR DOHC APPROVAL

PROJECT MANAGER: P.A. WITHERSPOON, P.E.
DESIGN ENG.: G.M. WILLIAMS, P.E.
D.E.: C.A. WRIGHT, P.E.
CADD:
PROJECT NUMBER: 00XXXXXXXXX1010

Bees Ferry Landfill
C&D Landfill Expansion

Charleston County — South Carolina

Overall Site Plan

FILENAME: BFM-01
SCALE: 1"=200'
SHEET: G-01

0290

C&D PERMIT 0124

Attachment One

Stability Evaluations

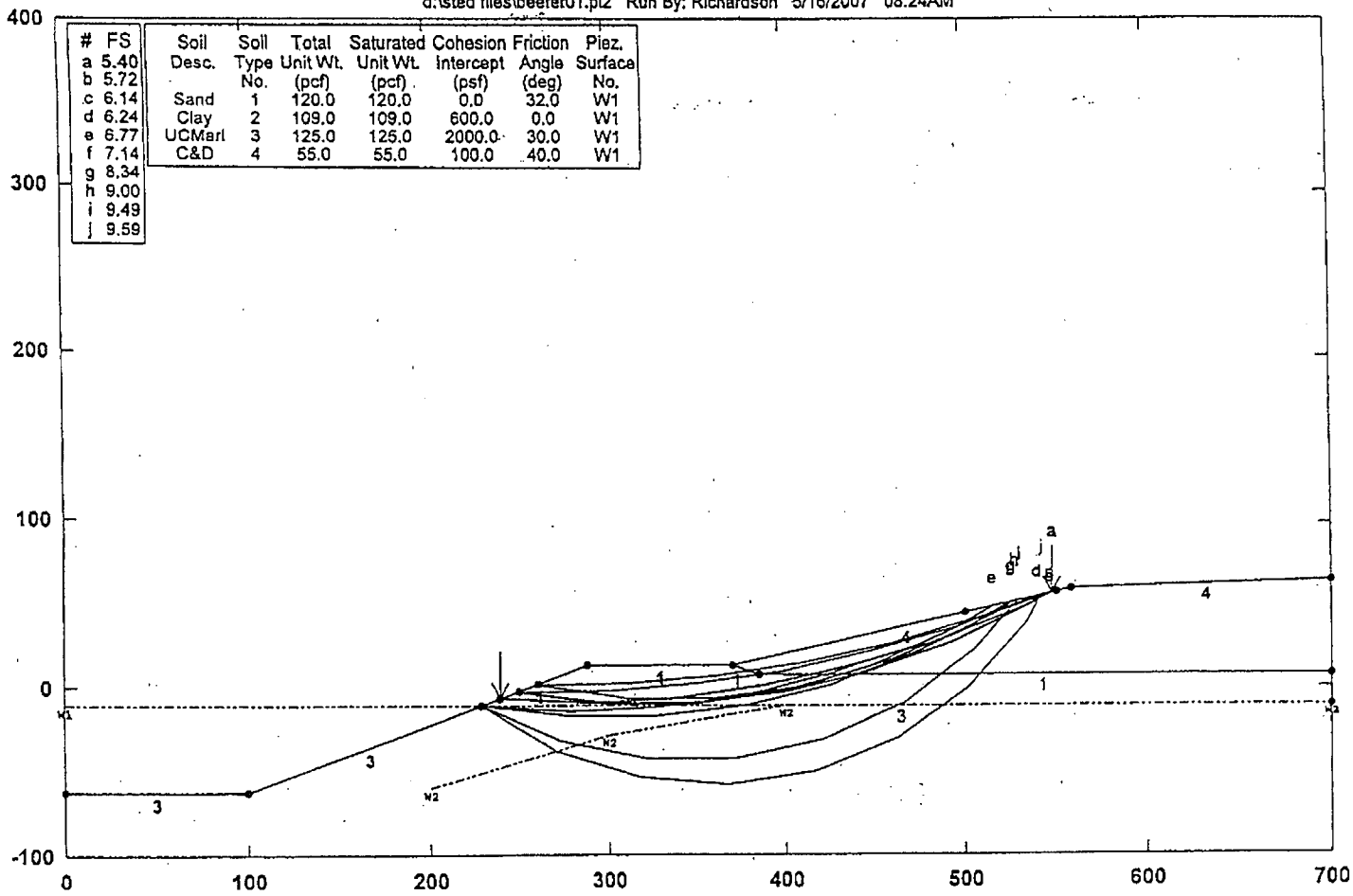
Silty Sands Above UCM

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer01.pl2 Run By: Richardson 5/16/2007 08:24AM

#	FS
a	5.40
b	5.72
c	6.14
d	6.24
e	6.77
f	7.14
g	8.34
h	9.00
i	9.49
j	9.59

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1



STABL6H FSmin=5.40

Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0126

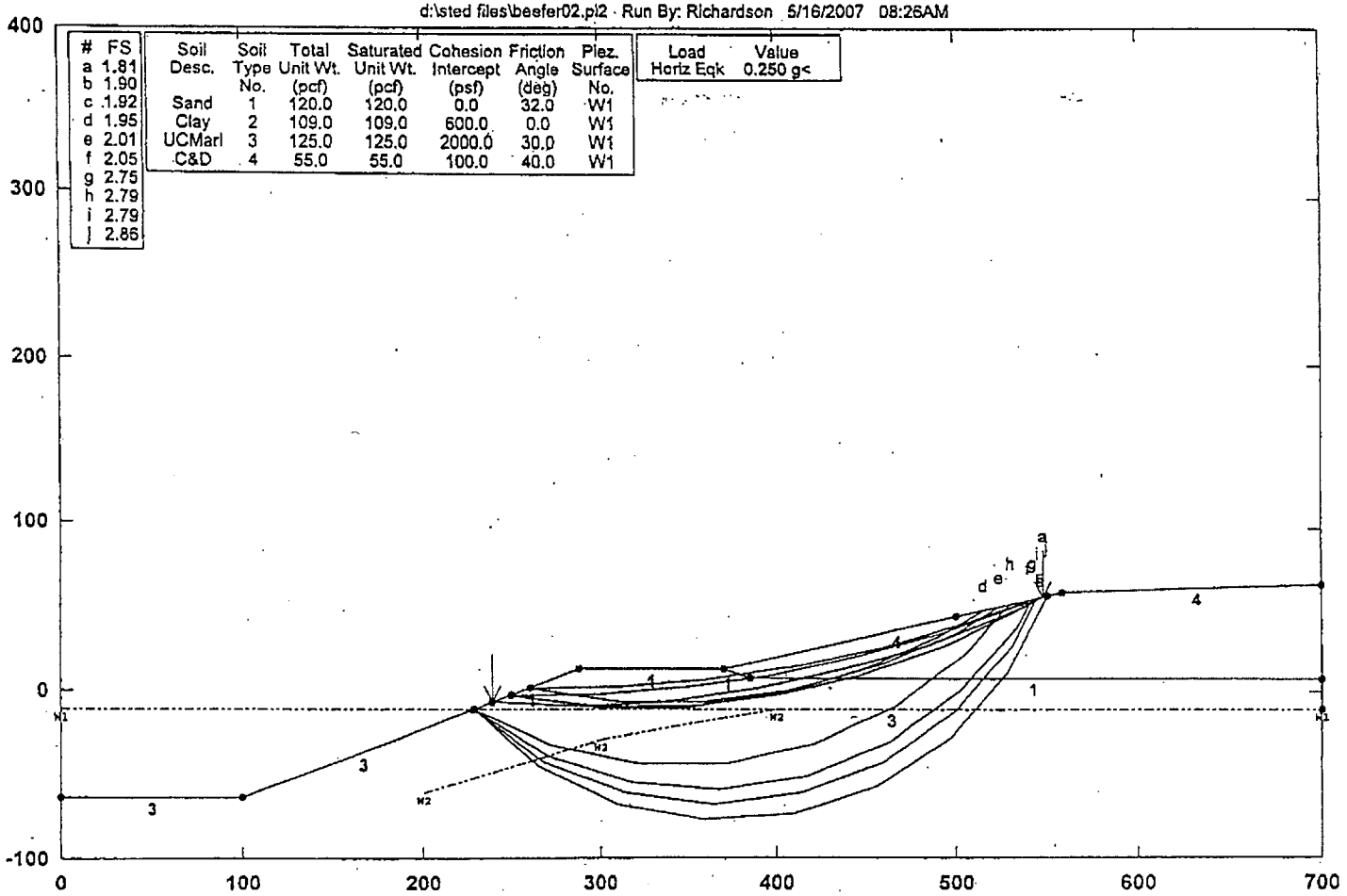
Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Seismic - Pond Full

d:\sted files\beefer02.pl2 - Run By: Richardson 5/16/2007 08:26AM

#	FS
a	1.81
b	1.90
c	1.92
d	1.95
e	2.01
f	2.05
g	2.75
h	2.79
i	2.79
j	2.86

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=1.81

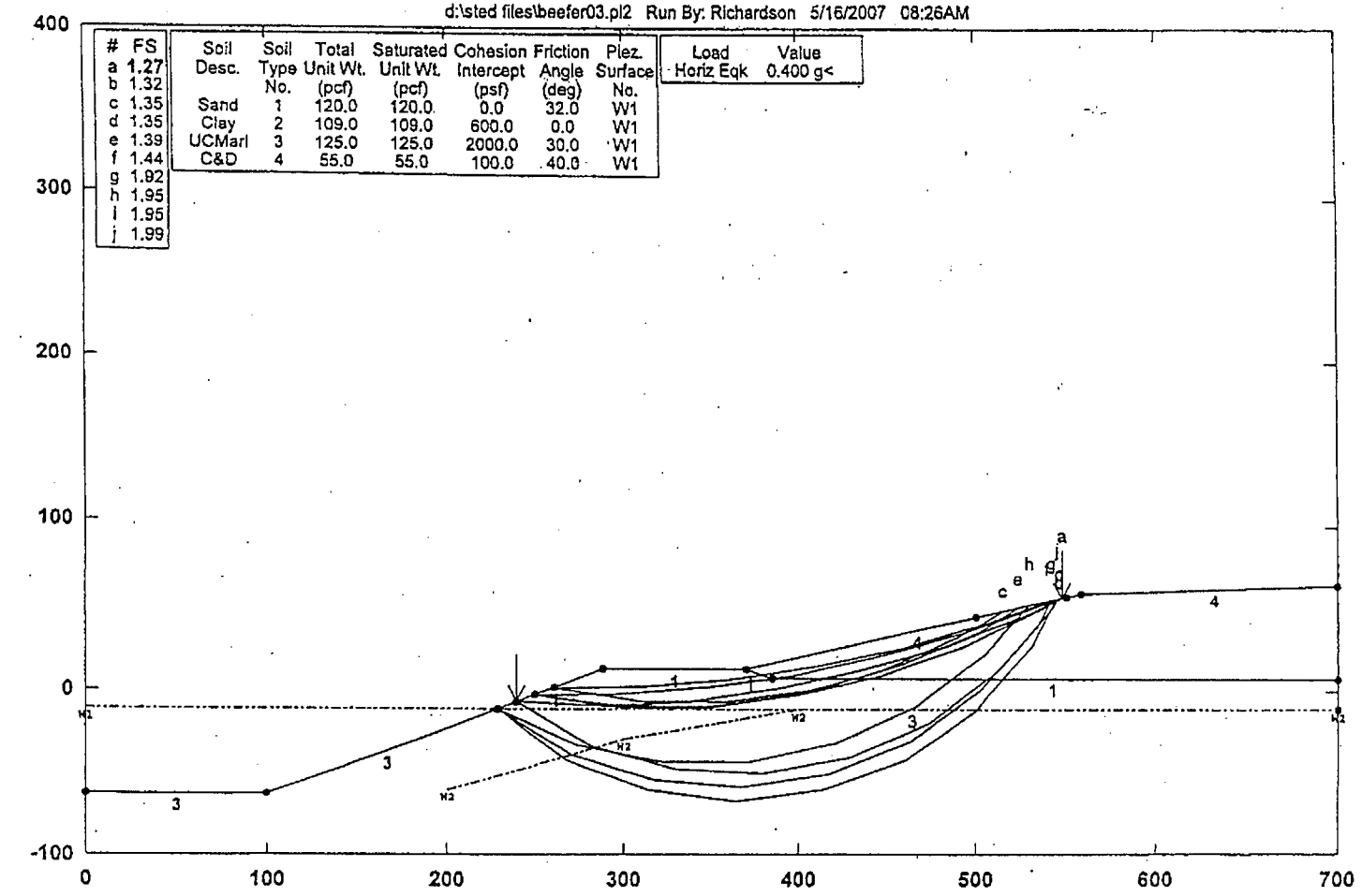
Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0127

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Seismic - Pond Full

d:\sted files\beefer03.pl2 Run By: Richardson 5/16/2007 08:26AM



STABL6H FSmin=1.27

Safety Factors Are Calculated By The Modified Bishop Method

STED



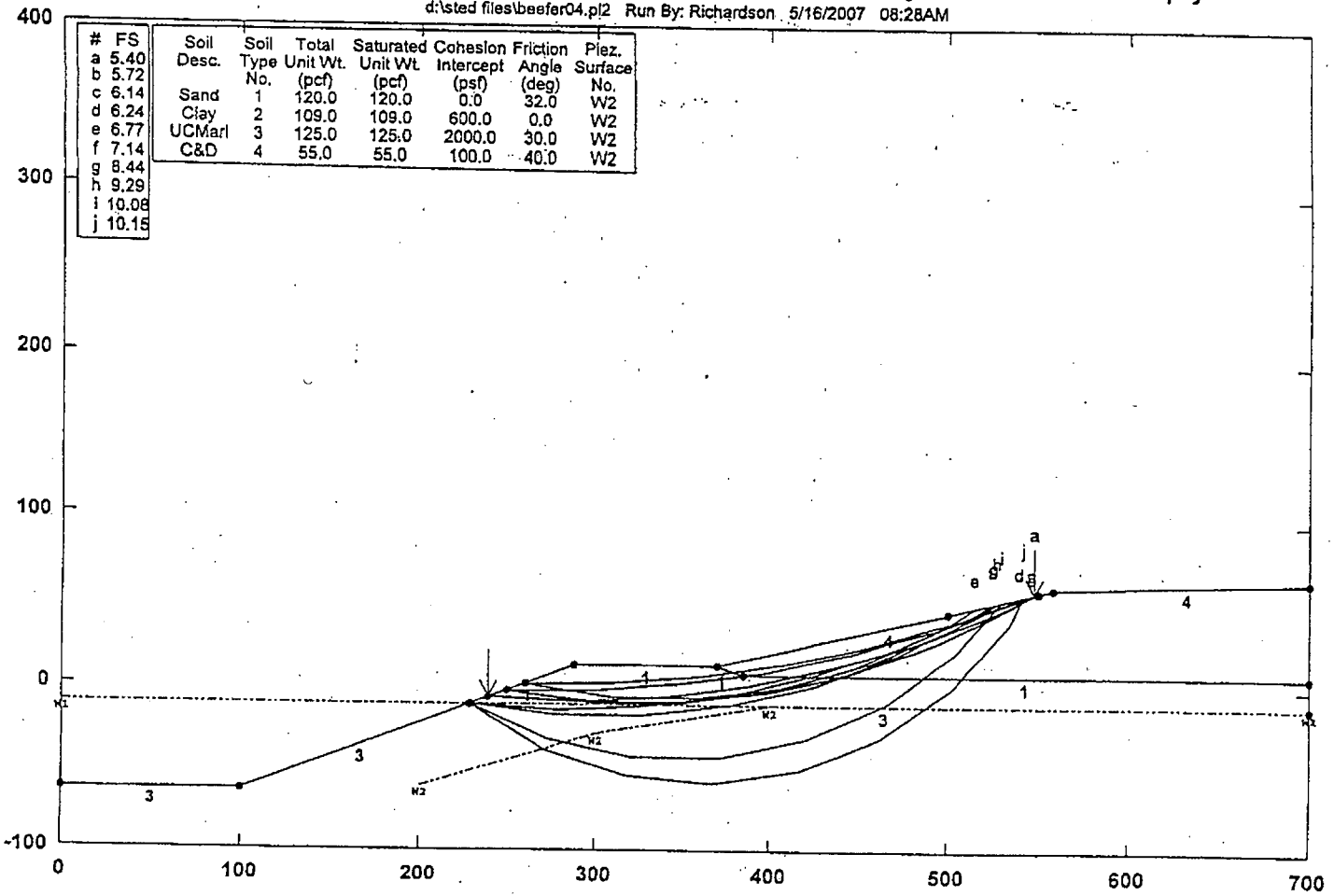
C&D PERMIT 0128

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Empty

d:\sted files\beefer04.pl2 Run By: Richardson 5/16/2007 08:28AM

#	FS
a	5.40
b	5.72
c	6.14
d	6.24
e	6.77
f	7.14
g	8.44
h	9.29
i	10.08
j	10.15

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W2
Clay	2	109.0	109.0	600.0	0.0	W2
UCMarl	3	125.0	125.0	2000.0	30.0	W2
C&D	4	55.0	55.0	100.0	40.0	W2



STABL6H FSmin=5.40

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0129

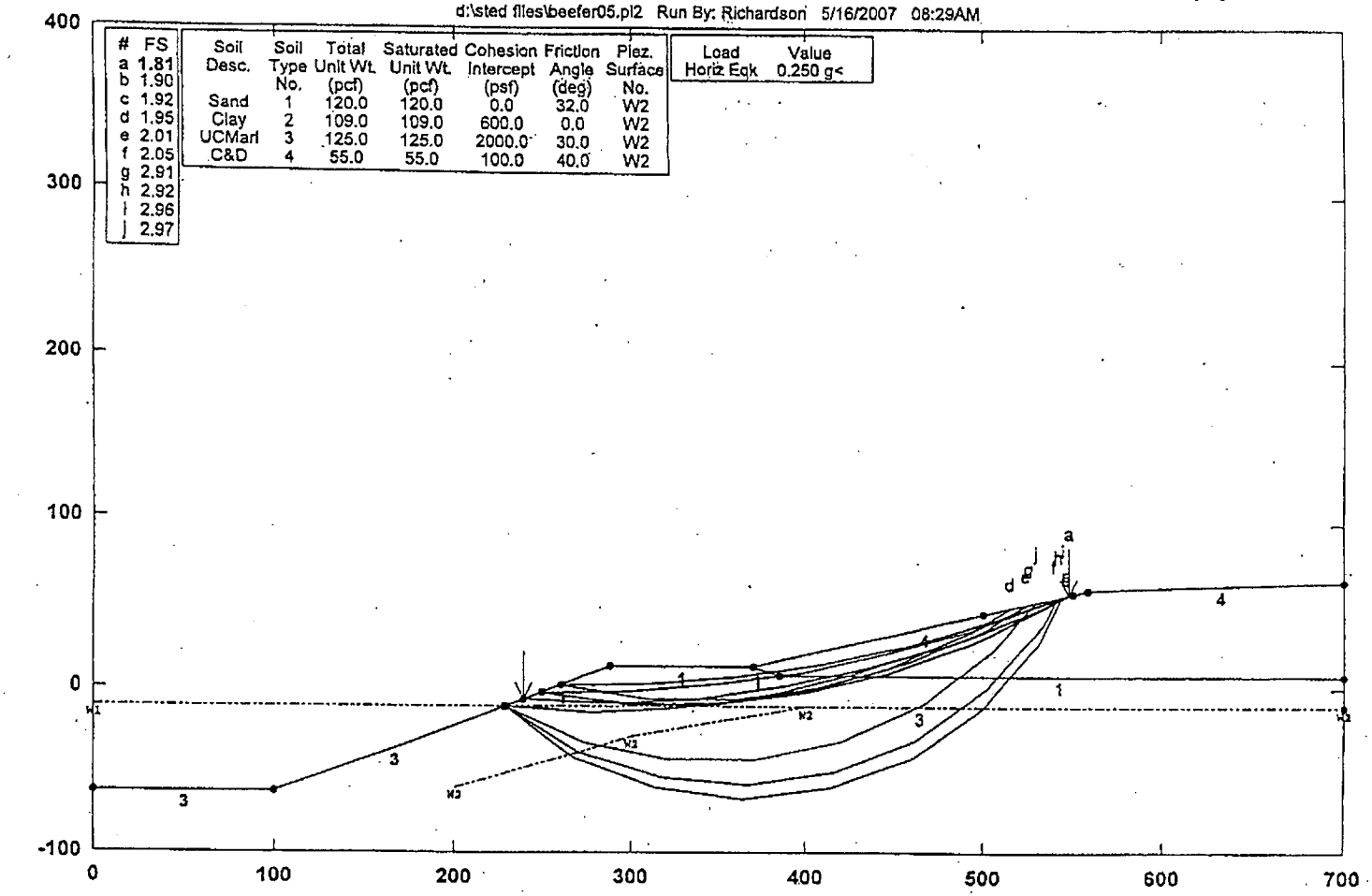
Bees Ferry C&D Landfill - Charleston, SCShallow Seismic - Static - Pond Empty

d:\sted files\beefer05.pl2 Run By: Richardson 5/16/2007 08:29AM

#	FS
a	1.81
b	1.90
c	1.92
d	1.95
e	2.01
f	2.05
g	2.91
h	2.92
i	2.96
j	2.97

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W2
Clay	2	109.0	109.0	600.0	0.0	W2
UCMarl	3	125.0	125.0	2000.0	30.0	W2
C&D	4	55.0	55.0	100.0	40.0	W2

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=1.81

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0130

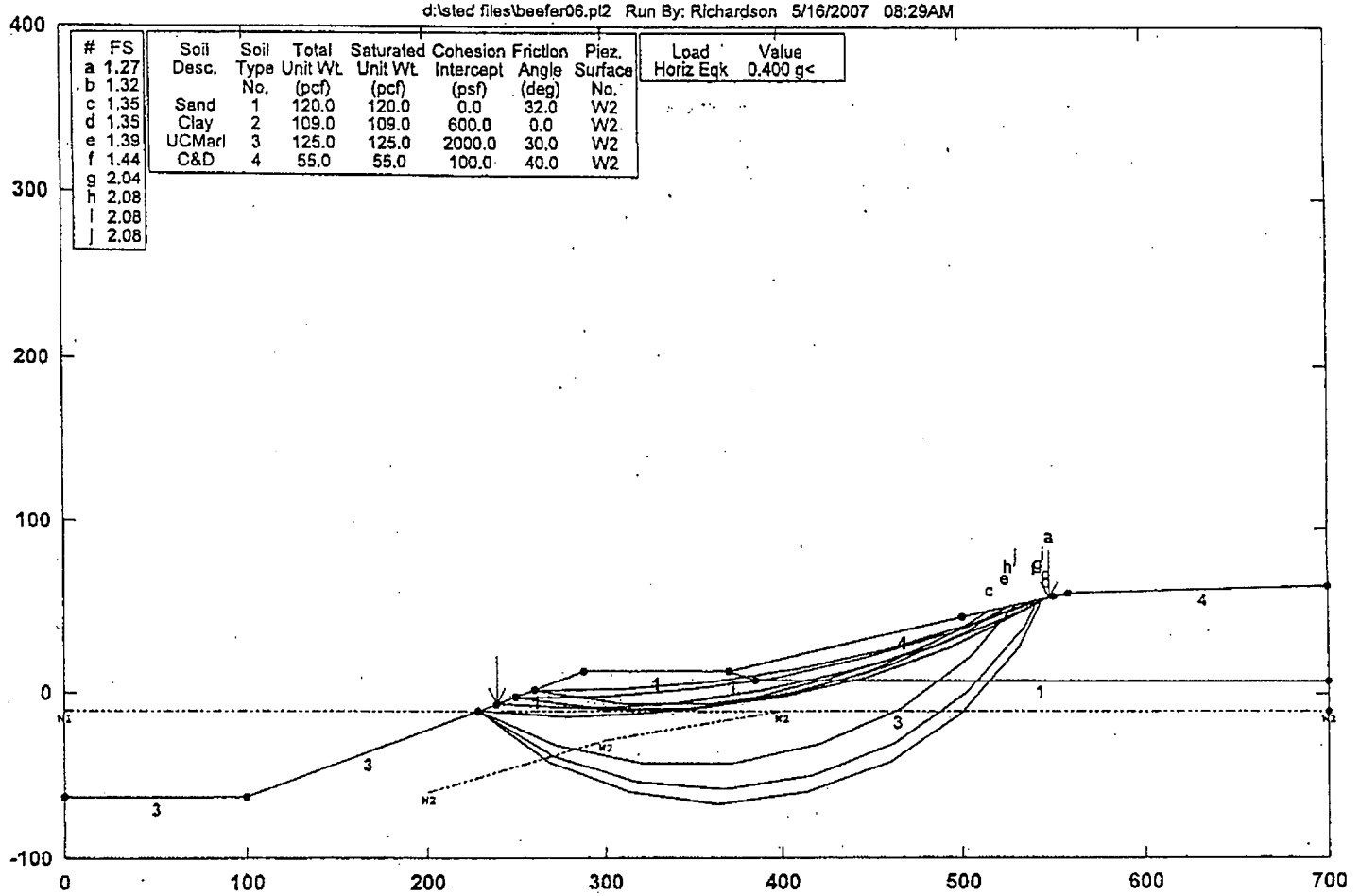
Bees Ferry C&D Landfill - Charleston, SCShallow Seismic - Static - Pond Empty

d:\sted files\beefer06.pl2 Run By: Richardson 5/16/2007 08:29AM

#	FS
a	1.27
b	1.32
c	1.35
d	1.35
e	1.39
f	1.44
g	2.04
h	2.08
i	2.08
j	2.08

Soil Desc.	Soil Type No.	Total Unit Wt (pcf)	Saturated Unit Wt (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W2
Clay	2	109.0	109.0	600.0	0.0	W2
UCMarl	3	125.0	125.0	2000.0	30.0	W2
C&D	4	55.0	55.0	100.0	40.0	W2

Load	Value
Horiz Eqk	0.400 g<



STABL6H FSmin=1.27

Safety Factors Are Calculated By The Modified Bishop Method

STED

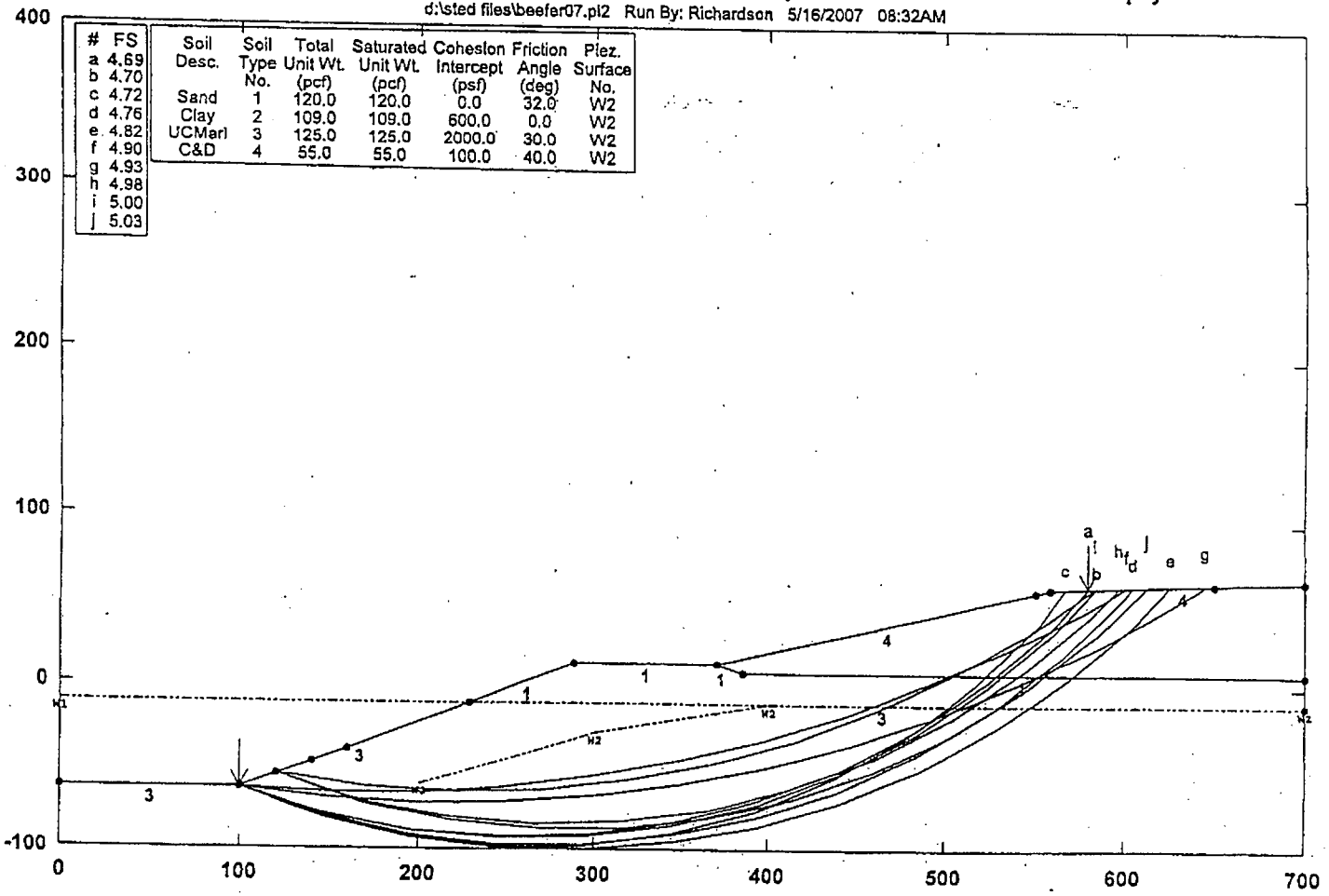
C&D PERMIT 0131

Bees Ferry C&D Landfill - Charleston, SCDeep Static - Static - Pond Empty

d:\sted files\beefer07.pl2 Run By: Richardson 5/16/2007 08:32AM

#	FS
a	4.69
b	4.70
c	4.72
d	4.76
e	4.82
f	4.90
g	4.93
h	4.98
i	5.00
j	5.03

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W2
Clay	2	109.0	109.0	600.0	0.0	W2
UCMarl	3	125.0	125.0	2000.0	30.0	W2
C&D	4	55.0	55.0	100.0	40.0	W2



STABL6H FSmin=4.69

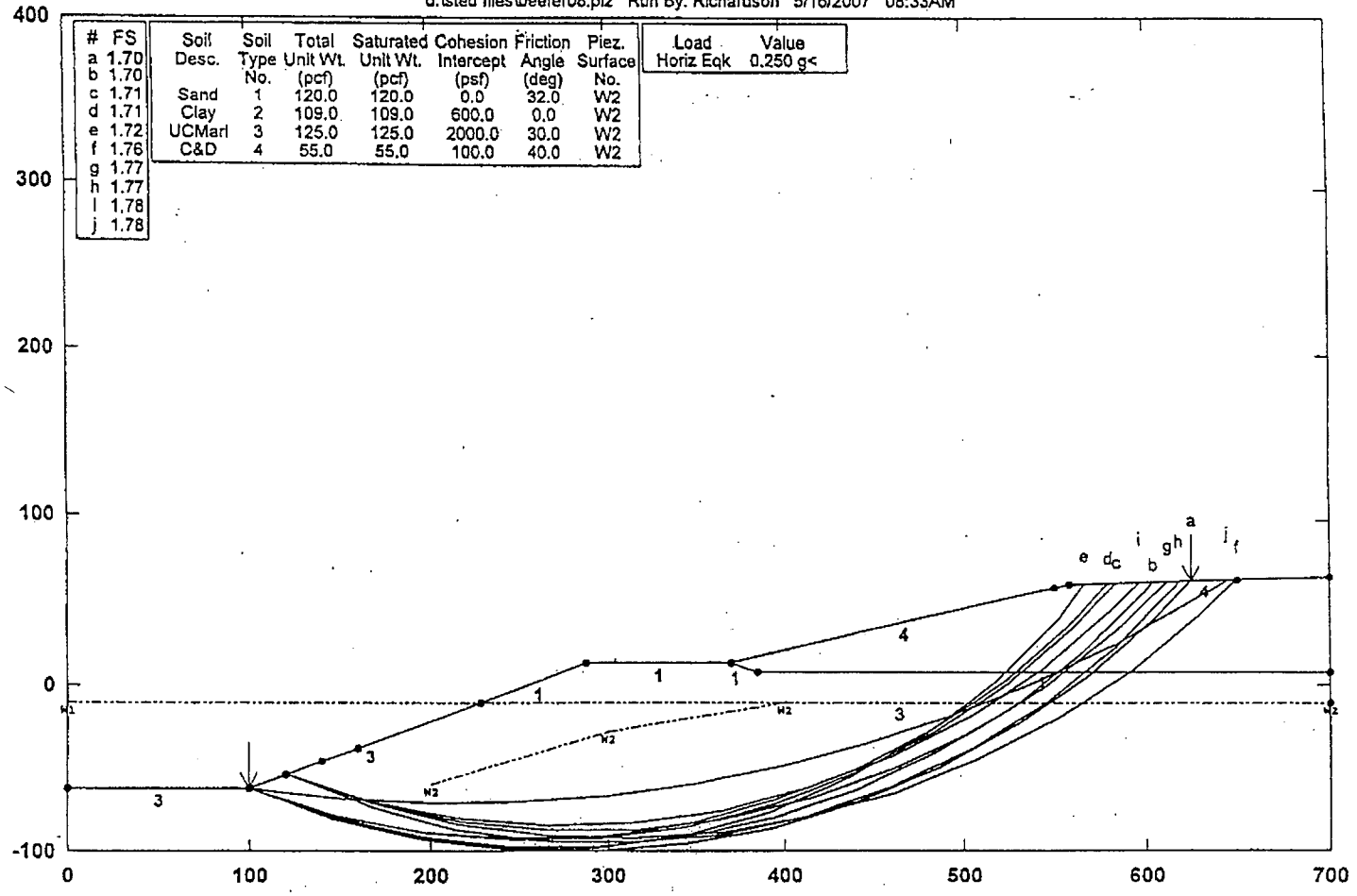
Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0132

Bees Ferry C&D Landfill - Charleston, SCDeep Static - Seismic - Pond Empty

d:\sted files\beefer08.pl2 Run By: Richardson 5/16/2007 08:33AM



STABL6H FSmin=1.70

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0133

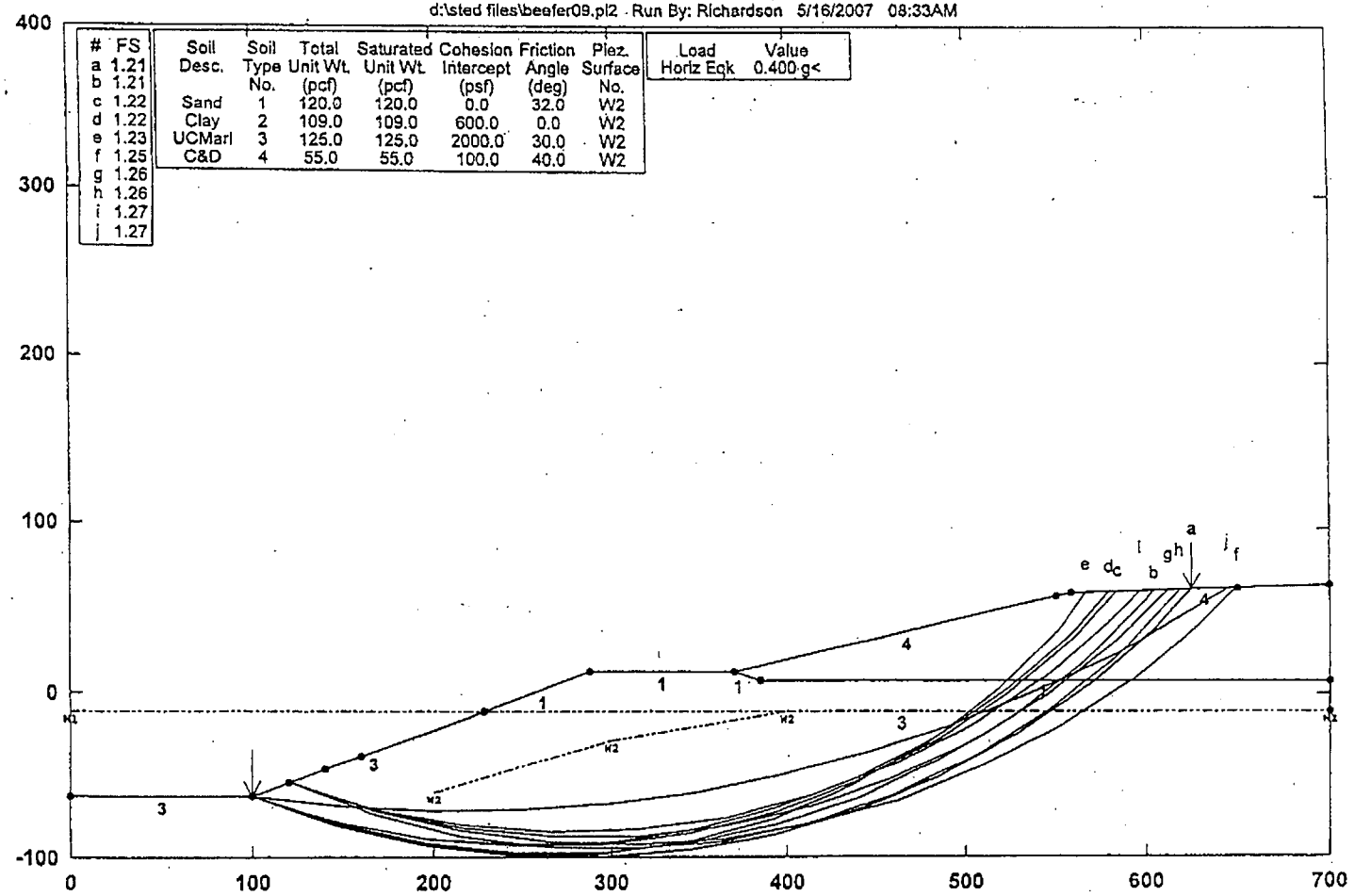
Bees Ferry C&D Landfill - Charleston, SCDeep Static - Seismic - Pond Empty

d:\sted files\beefer09.pl2 - Run By: Richardson 5/16/2007 08:33AM

#	FS
a	1.21
b	1.21
c	1.22
d	1.22
e	1.23
f	1.25
g	1.26
h	1.26
i	1.27
j	1.27

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W2
Clay	2	109.0	109.0	600.0	0.0	W2
UCMarl	3	125.0	125.0	2000.0	30.0	W2
C&D	4	55.0	55.0	100.0	40.0	W2

Load	Value
Horiz Eqk	0.400 g<



STABL6H FSmin=1.21

Safety Factors Are Calculated By The Modified Bishop Method

STED

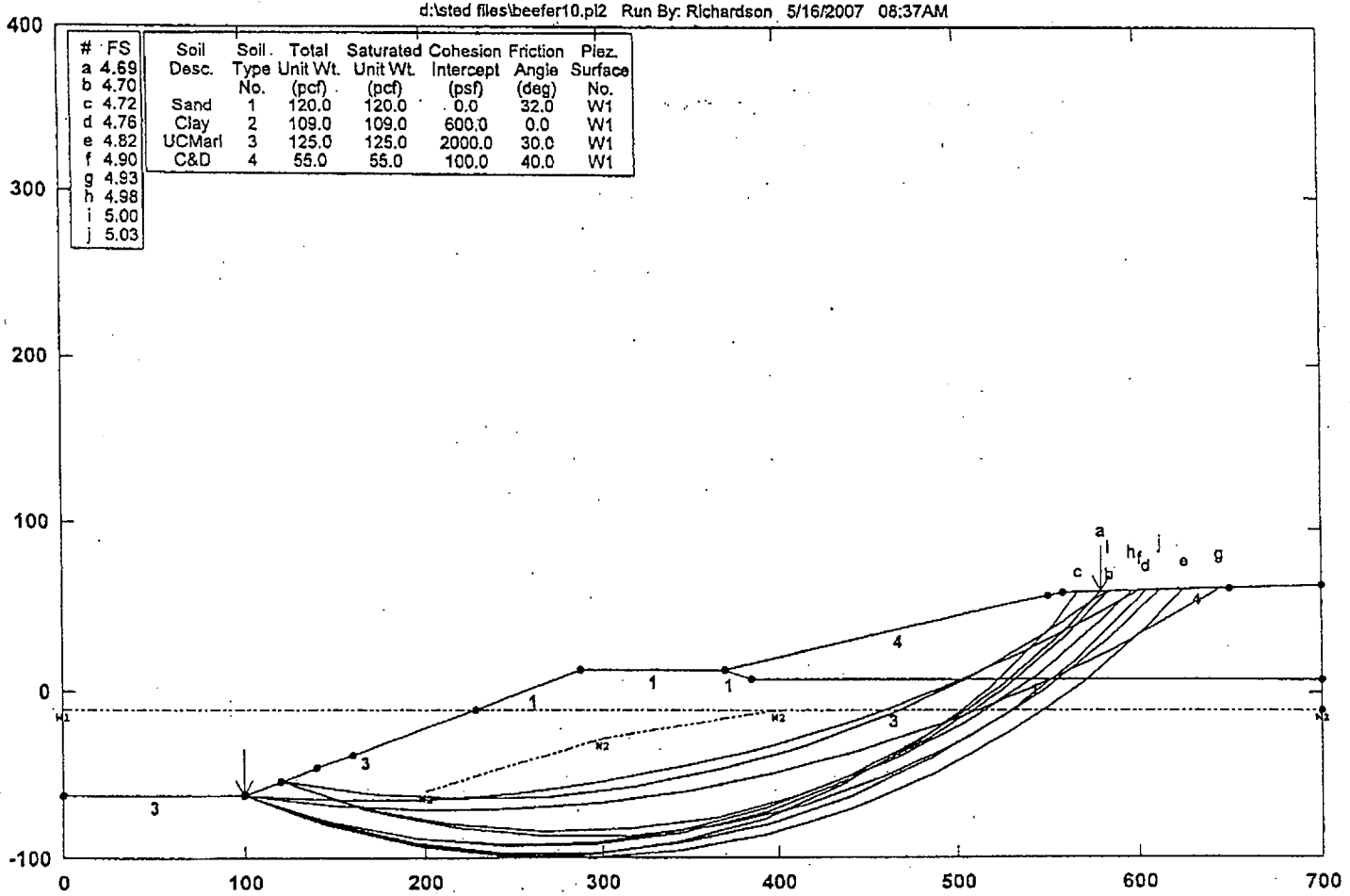
C&D PERMIT 0134

Bees Ferry C&D Landfill - Charleston, SCDeep Static - Static - Pond Full

d:\sted files\beefer10.pl2 Run By: Richardson 5/16/2007 08:37AM

#	FS
a	4.69
b	4.70
c	4.72
d	4.76
e	4.82
f	4.90
g	4.93
h	4.98
i	5.00
j	5.03

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1



STABL6H FSmin=4.69

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0135

0301

0302

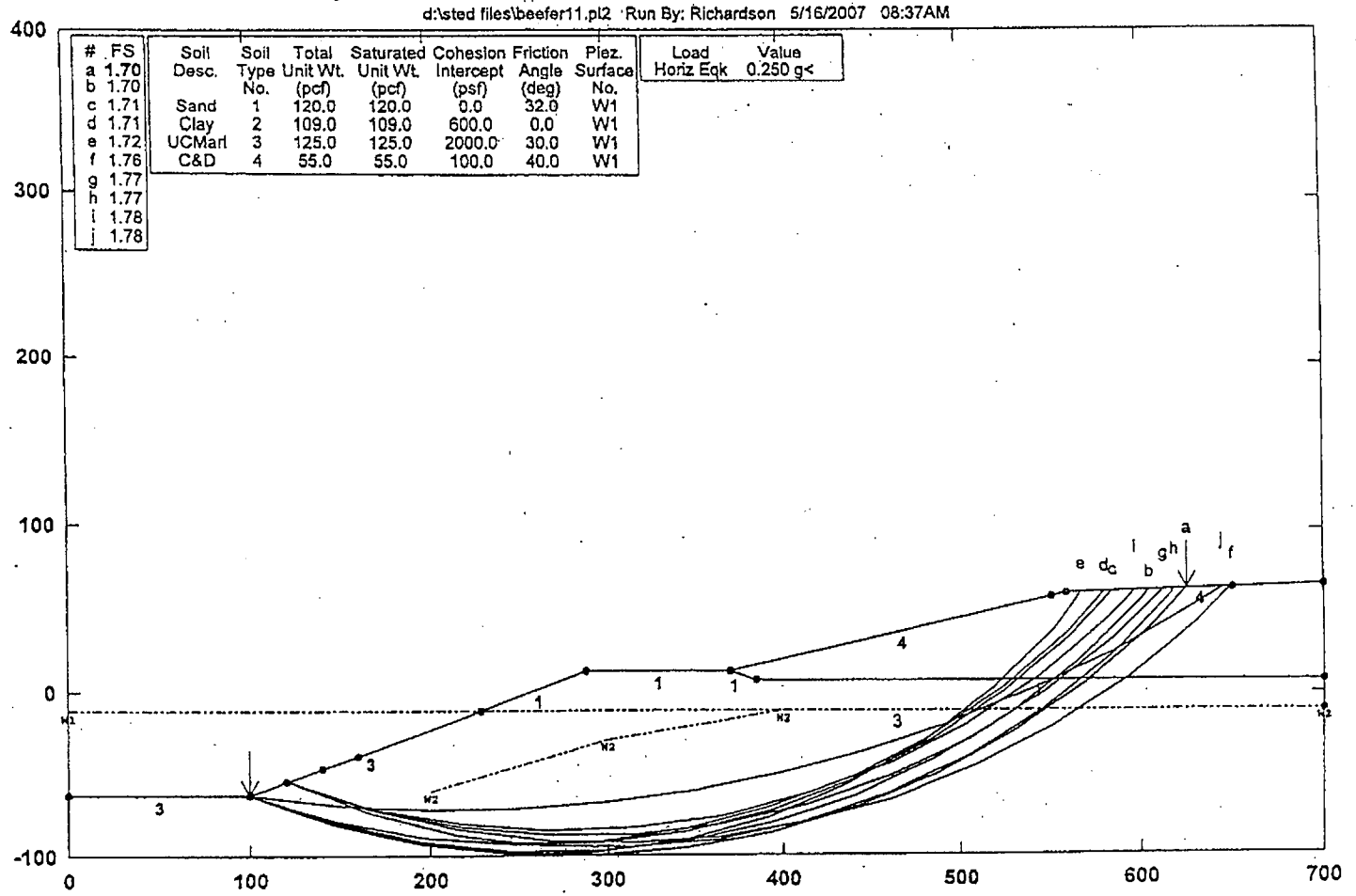
Bees Ferry C&D Landfill - Charleston, SCDeep Static - Seismic - Pond Full

d:\sted files\beefer11.pl2 Run By: Richardson 5/16/2007 08:37AM

#	FS
a	1.70
b	1.70
c	1.71
d	1.71
e	1.72
f	1.76
g	1.77
h	1.77
i	1.78
j	1.78

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=1.70

Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0136

0303

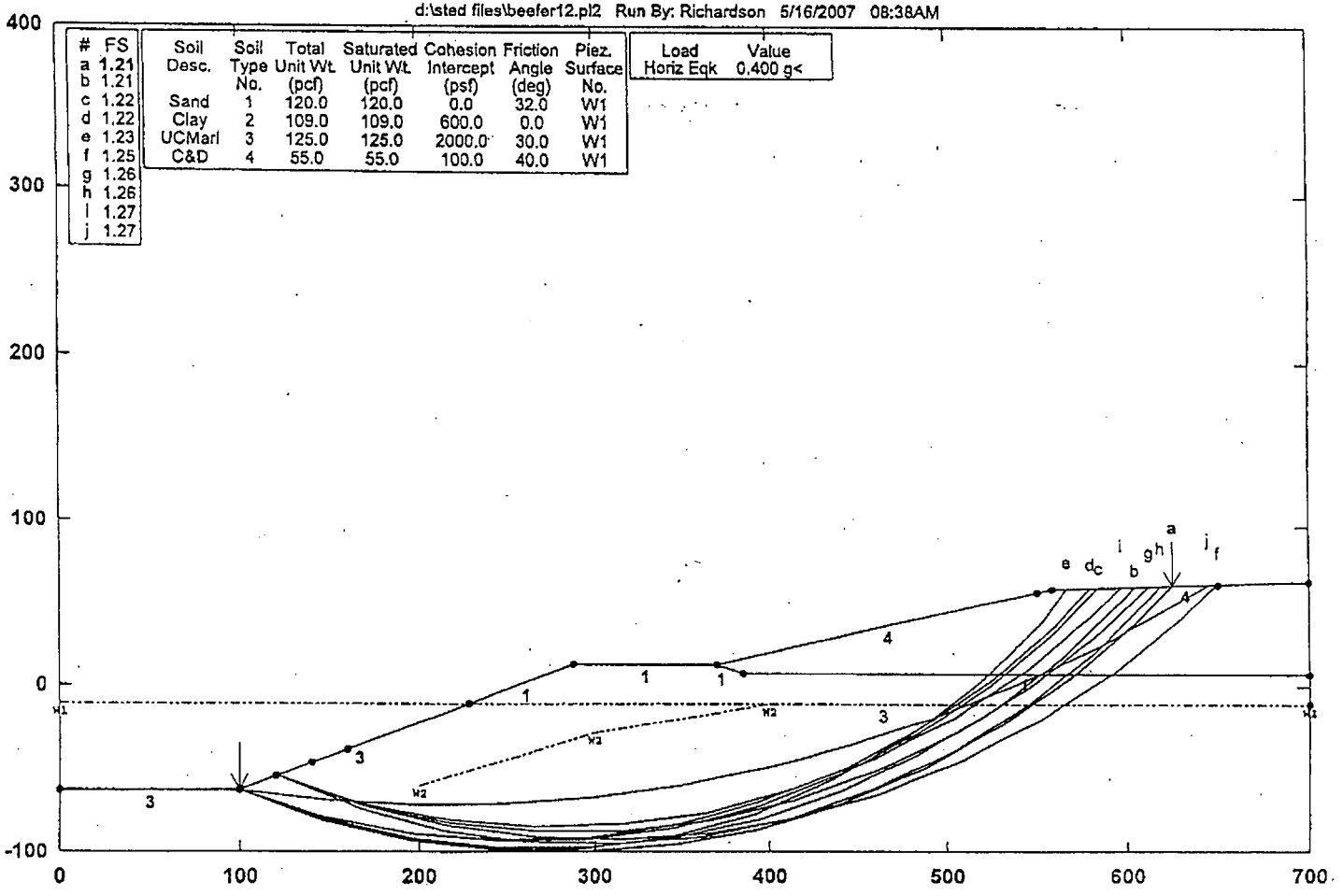
Bees Ferry C&D Landfill - Charleston, SCDeep Static - Seismic - Pond Full

d:\sted files\beefer12.pl2 Run By: Richardson 5/16/2007 08:38AM

#	FS
a	1.21
b	1.21
c	1.22
d	1.22
e	1.23
f	1.25
g	1.26
h	1.26
i	1.27
j	1.27

Soil Desc.	Soil Type No.	Total Unit Wt (pcf)	Saturated Unit Wt (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.400 g<



STABL6H FSmin=1.21

Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0137

** STABL6H **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 5/16/2007
Time of Run: 08:38AM
Run By: Richardson
Input Data Filename: D:BeeFer12.
Output Filename: D:BeeFer12.OUT
Plotted Output Filename: D:BeeFer12.PLT
PROBLEM DESCRIPTION Bees Ferry C&D Landfill - Charleston, SC
Deep Static - Seismic - Pond Full

BOUNDARY COORDINATES
Note: User origin value specified.
Add 0.00 to X-values and -100.00 to Y-values listed.

6 Top Boundaries
9 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	38.00	100.00	38.00	3
2	100.00	38.00	228.00	89.00	3
3	228.00	89.00	288.00	113.00	1
4	288.00	113.00	370.00	113.00	1
5	370.00	113.00	558.00	160.00	4
6	558.00	160.00	700.00	165.00	4
7	370.00	113.00	385.00	108.00	1
8	385.00	108.00	700.00	108.00	1
9	228.00	89.00	700.00	89.00	3

ISOTROPIC SOIL PARAMETERS
4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	120.0	120.0	.0	32.0	.00	.0	1
2	109.0	109.0	600.0	.0	.00	.0	1
3	125.0	125.0	2000.0	30.0	.00	.0	1
4	55.0	55.0	100.0	40.0	.00	.0	1

2 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	89.00
2	700.00	89.00

Piezometric Surface No. 2 Specified by 4 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	200.00	40.00
2	300.00	72.00
3	400.00	89.00
4	700.00	89.00

A Horizontal Earthquake Loading Coefficient
Of .400 Has Been Assigned
A Vertical Earthquake Loading Coefficient
Of .000 Has Been Assigned
Cavitation Pressure = .0 psf
A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
40 Trial Surfaces Have Been Generated.
10 Surfaces Initiate From Each Of 4 Points Equally Spaced
Along The Ground Surface Between X = 100.00 ft.
and X = 160.00 ft.
Each Surface Terminates Between X = 550.00 ft.
and X = 650.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.
50.00 ft. Line Segments Define Each Trial Failure Surface.
Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	146.79	20.38
3	195.26	8.11
4	244.80	1.32
5	294.79	.11
6	344.59	4.50
7	393.60	14.42
8	441.19	29.75
9	486.77	50.31
10	529.77	75.83
11	569.64	105.99
12	605.90	140.42
13	624.33	162.34

Circle Center At X = 280.6 ; Y = 446.7 and Radius, 446.8
*** 1.206 ***
Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	146.89	20.65
3	195.49	8.89
4	245.13	2.89
5	295.13	2.73
6	344.81	8.41
7	393.48	19.86
8	440.48	36.91
9	485.17	59.33
10	526.94	86.82
11	565.20	119.00
12	599.45	155.43
13	604.03	161.62

Circle Center At X = 271.5 ; Y = 429.4 and Radius, 427.3
*** 1.213 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	147.29	21.76
3	196.18	11.26
4	245.96	6.66
5	295.94	8.01
6	345.41	15.31
7	393.66	28.43
8	440.00	47.21
9	483.77	71.37
10	524.36	100.56
11	561.19	134.38
12	583.93	160.91

Circle Center At X = 259.6 ; Y = 425.8 and Radius, 419.4
*** 1.220 ***
Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	147.37	21.99
3	196.31	11.75
4	246.12	7.44

C&D PERMIT 0139

5	296.09	9.11
6	345.51	16.75
7	393.65	30.24
8	439.84	49.39
9	483.41	73.92
10	523.73	103.49
11	560.23	137.66
12	579.63	160.76

Circle Center At X = 257.2 ; Y = 424.8 and Radius, 417.5

*** 1.222 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	146.33	19.19
3	194.76	6.77
4	244.42	.98
5	294.41	1.91
6	343.83	9.56
7	391.76	23.77
8	437.35	44.30
9	479.77	70.78
10	518.25	102.71
11	552.08	139.52
12	566.55	160.30

Circle Center At X = 262.5 ; Y = 371.7 and Radius, 371.2

*** 1.232 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	45.97
2	166.85	28.49
3	215.31	16.19
4	264.82	9.21
5	314.80	7.64
6	364.65	11.49
7	413.79	20.71
8	461.64	35.20
9	507.65	54.79
10	551.26	79.25
11	591.96	108.28
12	629.28	141.56
13	648.81	163.20

Circle Center At X = 304.3 ; Y = 468.5 and Radius, 461.0

*** 1.247 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	45.97
2	167.12	29.25
3	215.87	18.13
4	265.58	12.77
5	315.58	13.24
6	365.18	19.53
7	413.71	31.56
8	460.51	49.16
9	504.94	72.09
10	546.40	100.04
11	584.32	132.64
12	611.22	161.87

Circle Center At X = 286.6 ; Y = 440.6 and Radius, 428.4

*** 1.260 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	45.97
2	166.16	26.74

C&D PERMIT 0140

3	214.33	13.37
4	263.80	6.05
5	313.78	4.91
6	363.53	9.95
7	412.27	21.10
8	459.26	38.19
9	503.78	60.95
10	545.14	89.04
11	582.71	122.03
12	615.92	159.42
13	617.77	162.10

Circle Center At X = 298.0 ; Y = 408.4 and Radius, 403.8

*** 1.261 ***

Failure Surface Specified By 12 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	120.00	45.97
2	167.43	30.15
3	216.40	20.04
4	266.22	15.77
5	316.19	17.40
6	365.62	24.91
7	413.82	38.20
8	460.12	57.09
9	503.87	81.29
10	544.46	110.49
11	581.32	144.27
12	596.02	161.34

Circle Center At X = 277.4 ; Y = 438.9 and Radius, 423.3

*** 1.268 ***

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	100.00	38.00
2	149.62	31.84
3	199.54	29.01
4	249.54	29.51
5	299.39	33.34
6	348.88	40.48
7	397.78	50.91
8	445.87	64.58
9	492.95	81.42
10	538.80	101.36
11	583.22	124.31
12	626.01	150.18
13	644.40	163.04

Circle Center At X = 217.1 ; Y = 778.4 and Radius, 749.6

*** 1.268 ***

Attachment Two

Stability Evaluations

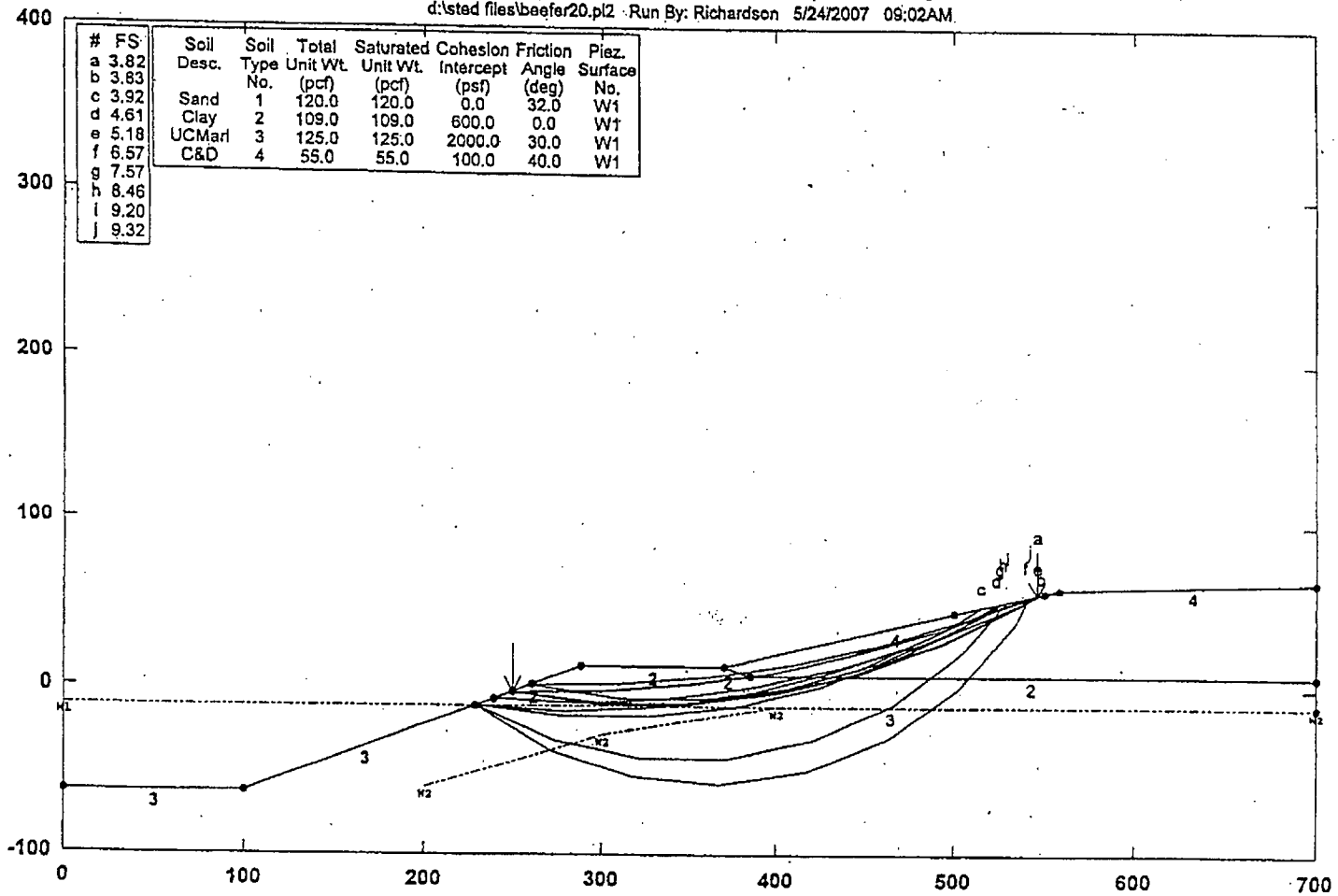
Soft Clay Above UCM

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer20.pl2 Run By: Richardson 5/24/2007 09:02AM

#	FS
a	3.82
b	3.83
c	3.92
d	4.61
e	5.18
f	6.57
g	7.57
h	8.46
i	9.20
j	9.32

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1



STABL6H FSmin=3.82

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0143

0006

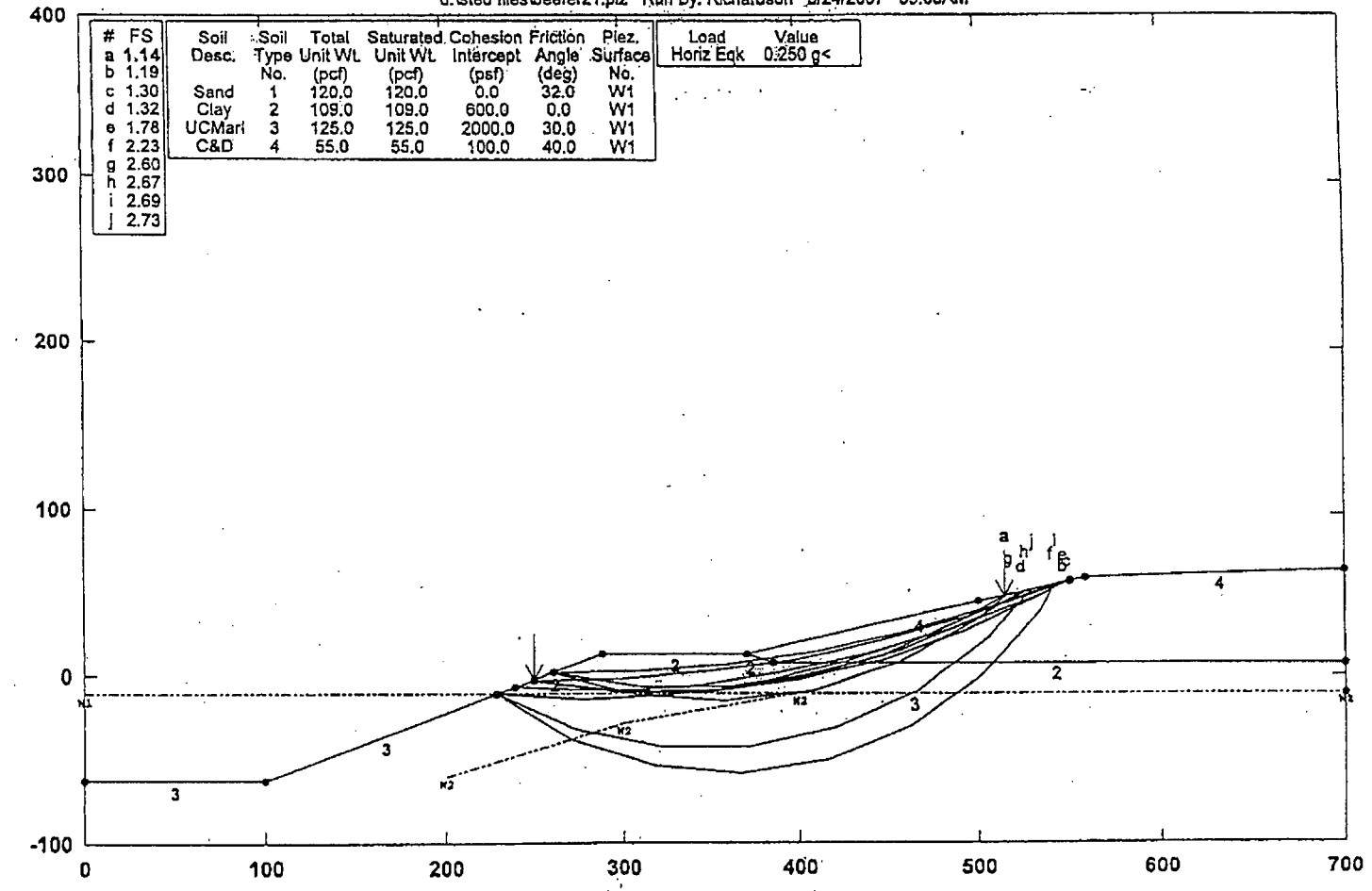
Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer21.pl2 Run By: Richardson 5/24/2007 09:03AM

#	FS
a	1.14
b	1.19
c	1.30
d	1.32
e	1.78
f	2.23
g	2.60
h	2.67
i	2.69
j	2.73

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=1.14

Safety Factors Are Calculated By The Modified Bishop Method

STED

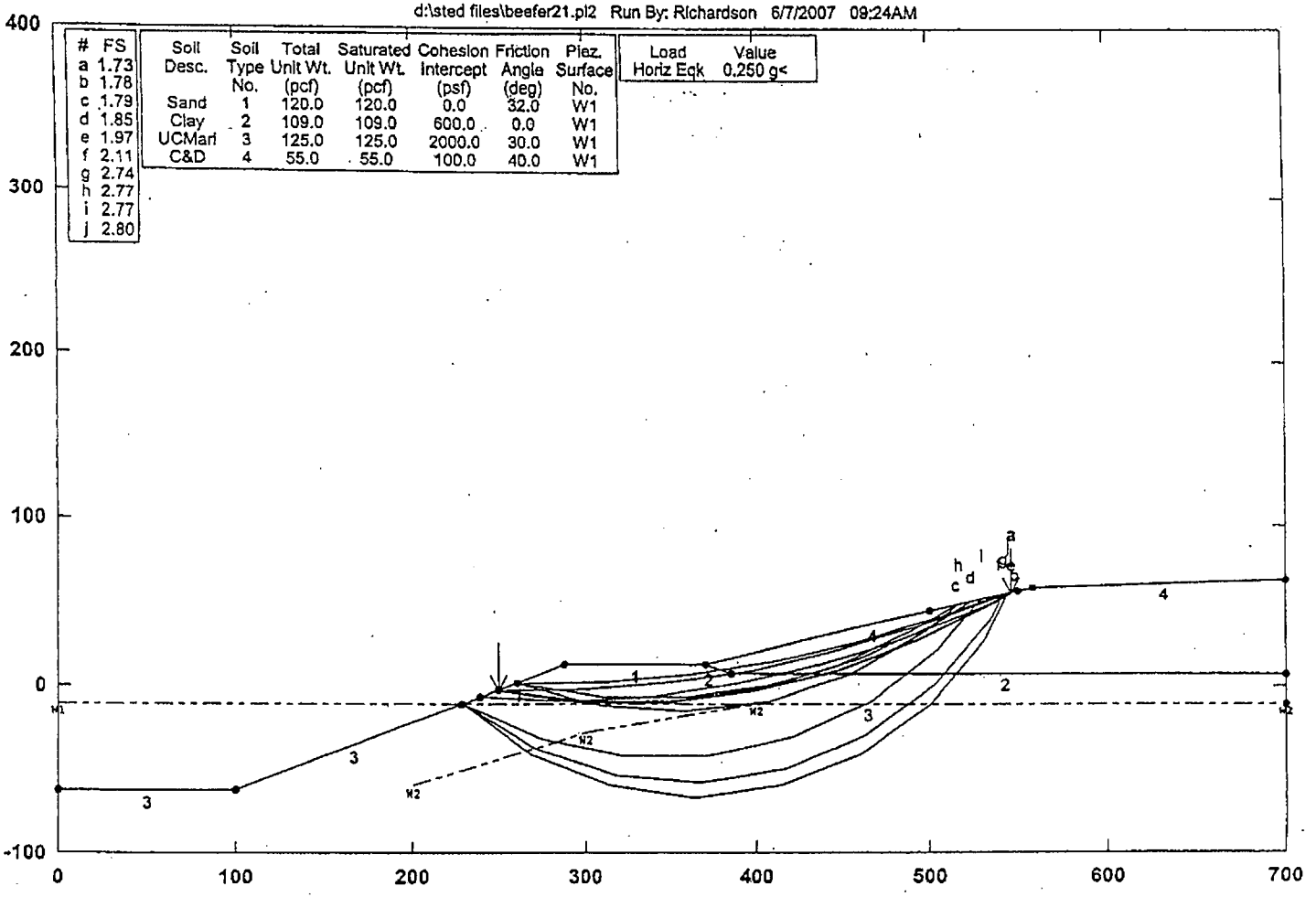


C&D PERMIT 0144

0310

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer21.pl2 Run By: Richardson 6/7/2007 09:24AM



#	FS
a	1.73
b	1.78
c	1.79
d	1.85
e	1.97
f	2.11
g	2.74
h	2.77
i	2.77
j	2.80

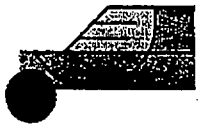
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMari	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.250 g<

STABL6H FSmin=1.73

Safety Factors Are Calculated By The Modified Bishop Method

STED

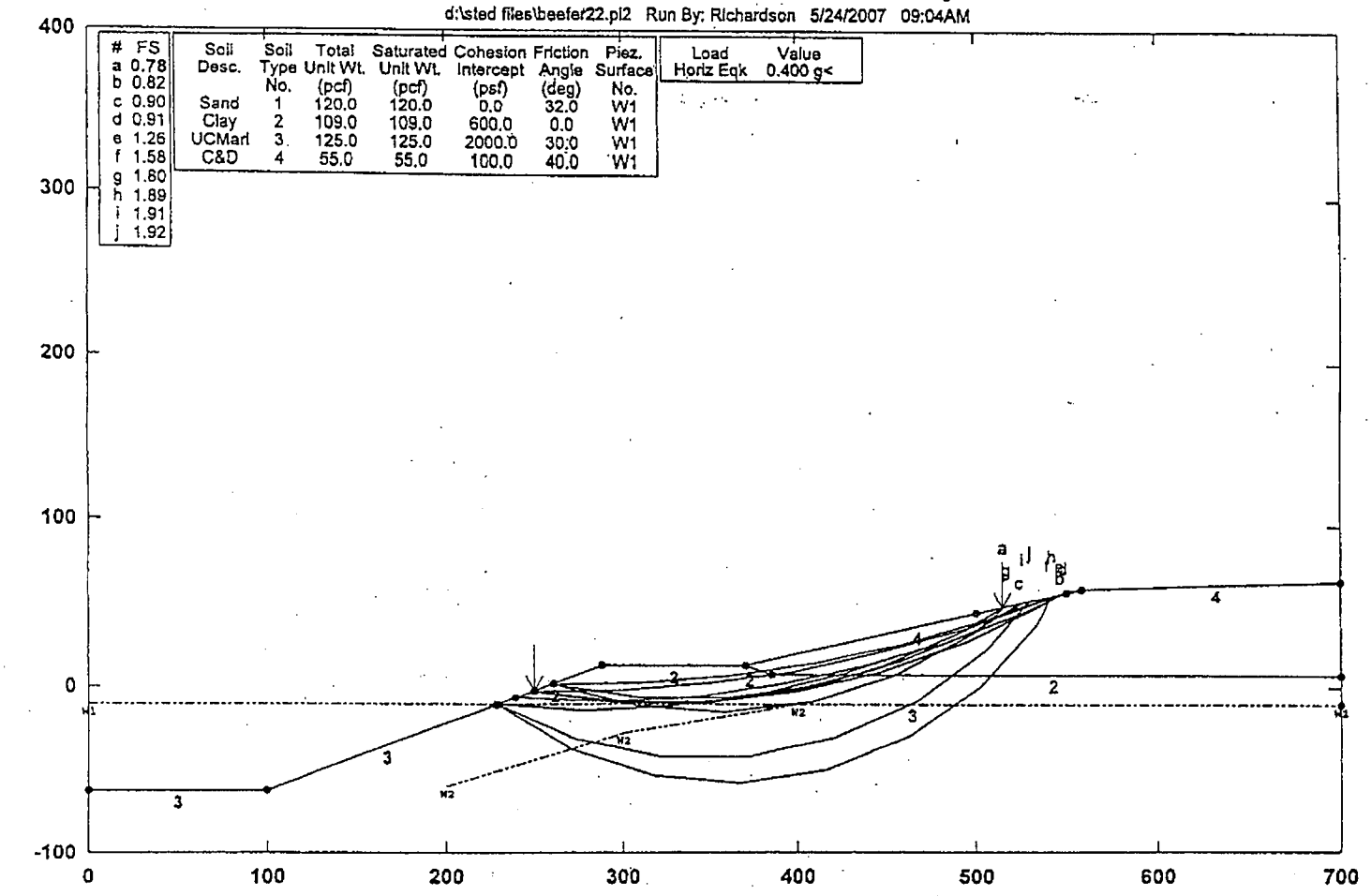


C&D PERMIT 0145

0311

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer22.pl2 Run By: Richardson 5/24/2007 09:04AM



#	FS
a	0.78
b	0.82
c	0.90
d	0.91
e	1.26
f	1.58
g	1.80
h	1.89
i	1.91
j	1.92

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.400 g<

STABL6H FSmin=0.78

Safety Factors Are Calculated By The Modified Bishop Method

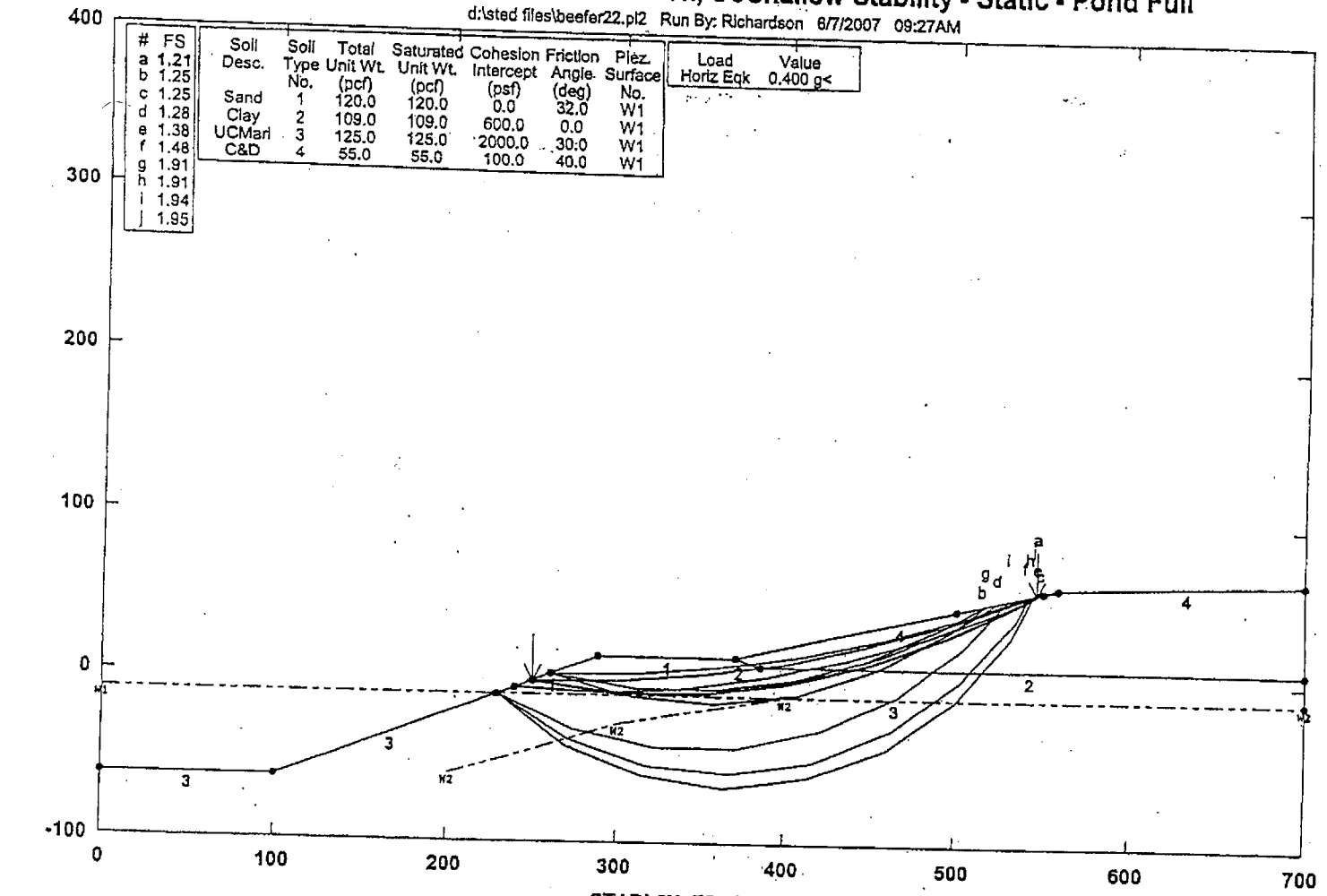
STED

C&D PERMIT 0146

0312

Bees Ferry C&D Landfill - Charleston, SCShallow Stability - Static - Pond Full

d:\sted files\beefer22.pl2 Run By: Richardson 6/7/2007 09:27AM



STED

STABL6H FSmin=1.21

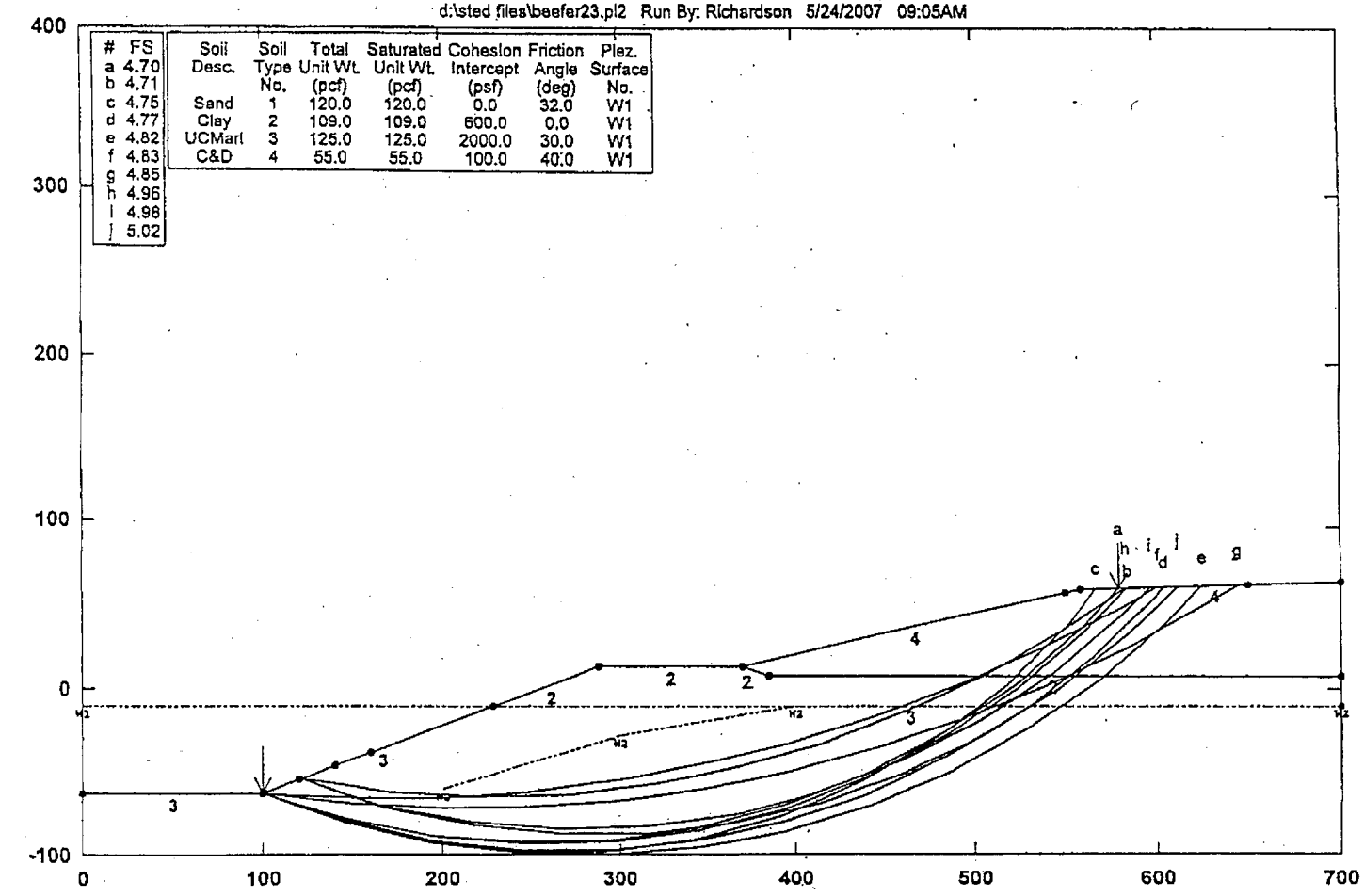
Safety Factors Are Calculated By The Modified Bishop Method

C&D PERMIT 0147

0313

Bees Ferry C&D Landfill - Charleston, SCDeep Static - Static - Pond Full

d:\sted files\beefer23.pl2 Run By: Richardson 5/24/2007 09:05AM



#	FS
a	4.70
b	4.71
c	4.75
d	4.77
e	4.82
f	4.83
g	4.85
h	4.96
i	4.98
j	5.02

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

STABL6H FSmin=4.70

Safety Factors Are Calculated By The Modified Bishop Method

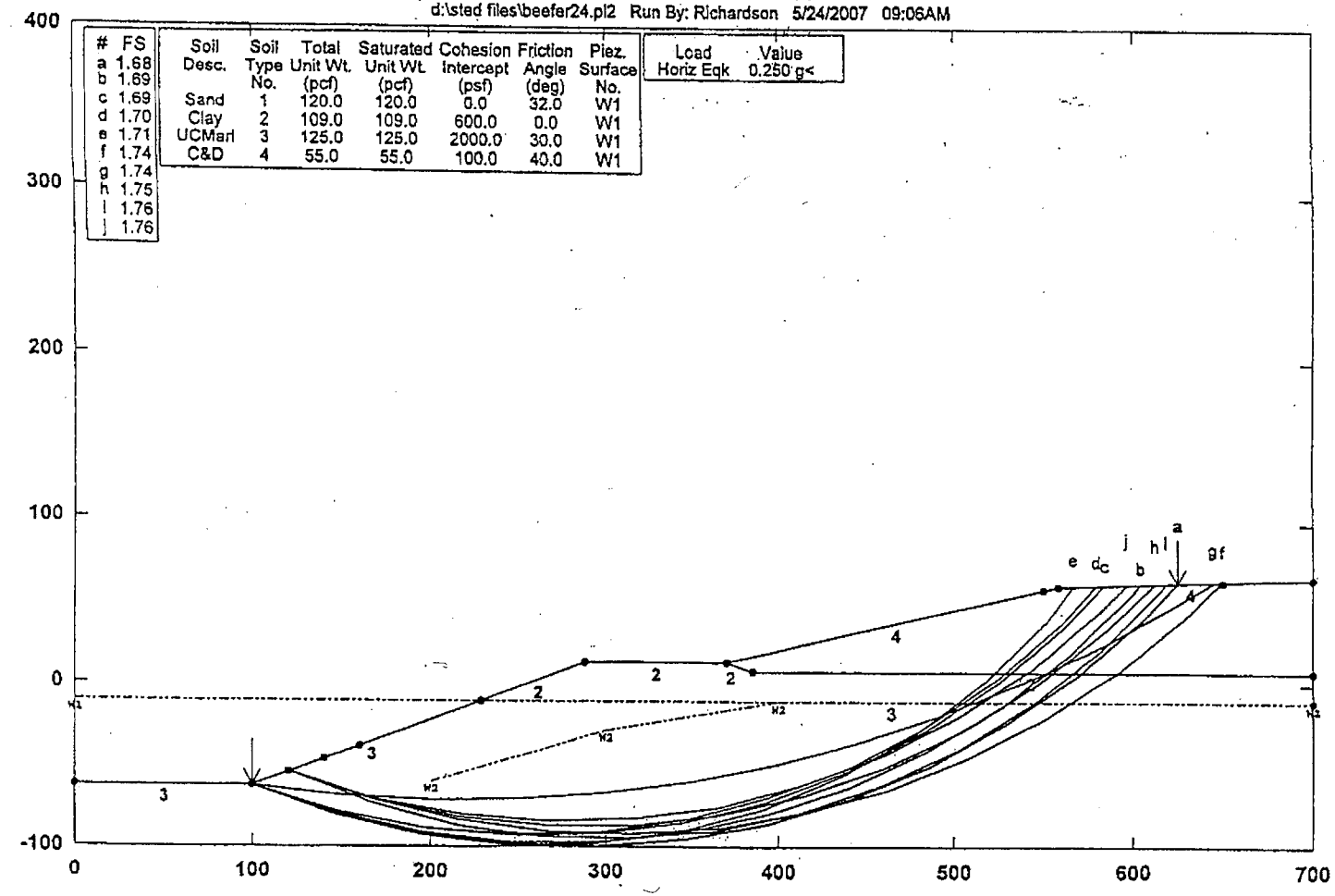
STED

C&D PERMIT 0148

0314

Bees Ferry C&D Landfill - Charleston, SCDeep Static - Static - Pond Full

d:\sted files\beefer24.pl2 Run By: Richardson 5/24/2007 09:06AM



STABL6H FSmin=1.68

Safety Factors Are Calculated By The Modified Bishop Method

STED



C&D PERMIT 0149

0315

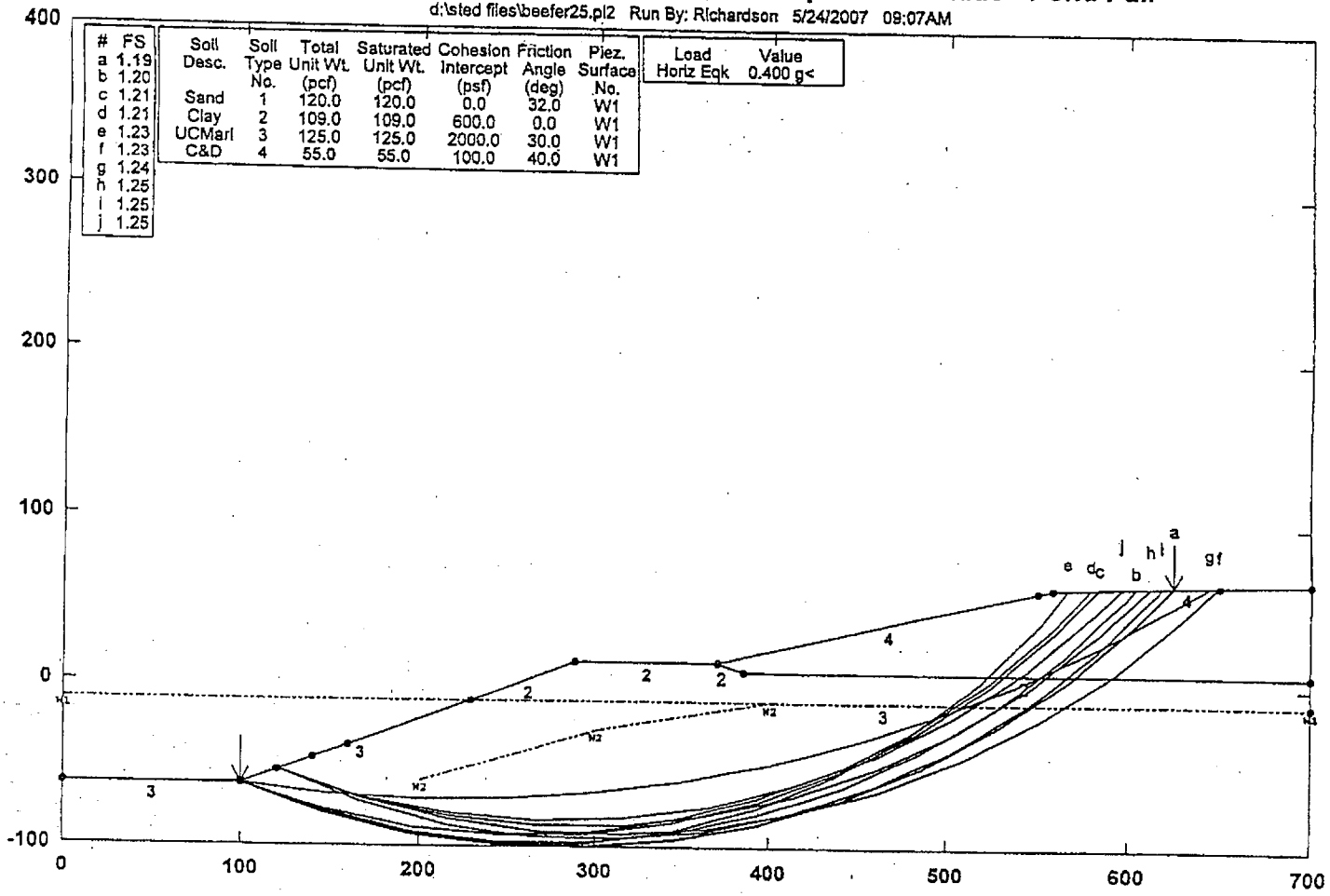
Bees Ferry C&D Landfill - Charleston, SCDeep Static - Static - Pond Full

d:\sted files\beefer25.pl2 Run By: Richardson 5/24/2007 09:07AM

#	FS
a	1.19
b	1.20
c	1.21
d	1.21
e	1.23
f	1.23
g	1.24
h	1.25
i	1.25
j	1.25

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	32.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMarl	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	40.0	W1

Load	Value
Horiz Eqk	0.400 g<



STABL6H FSmin=1.19

Safety Factors Are Calculated By The Modified Bishop Method

STED

C&D PERMIT 0150

0316

Attachment Three

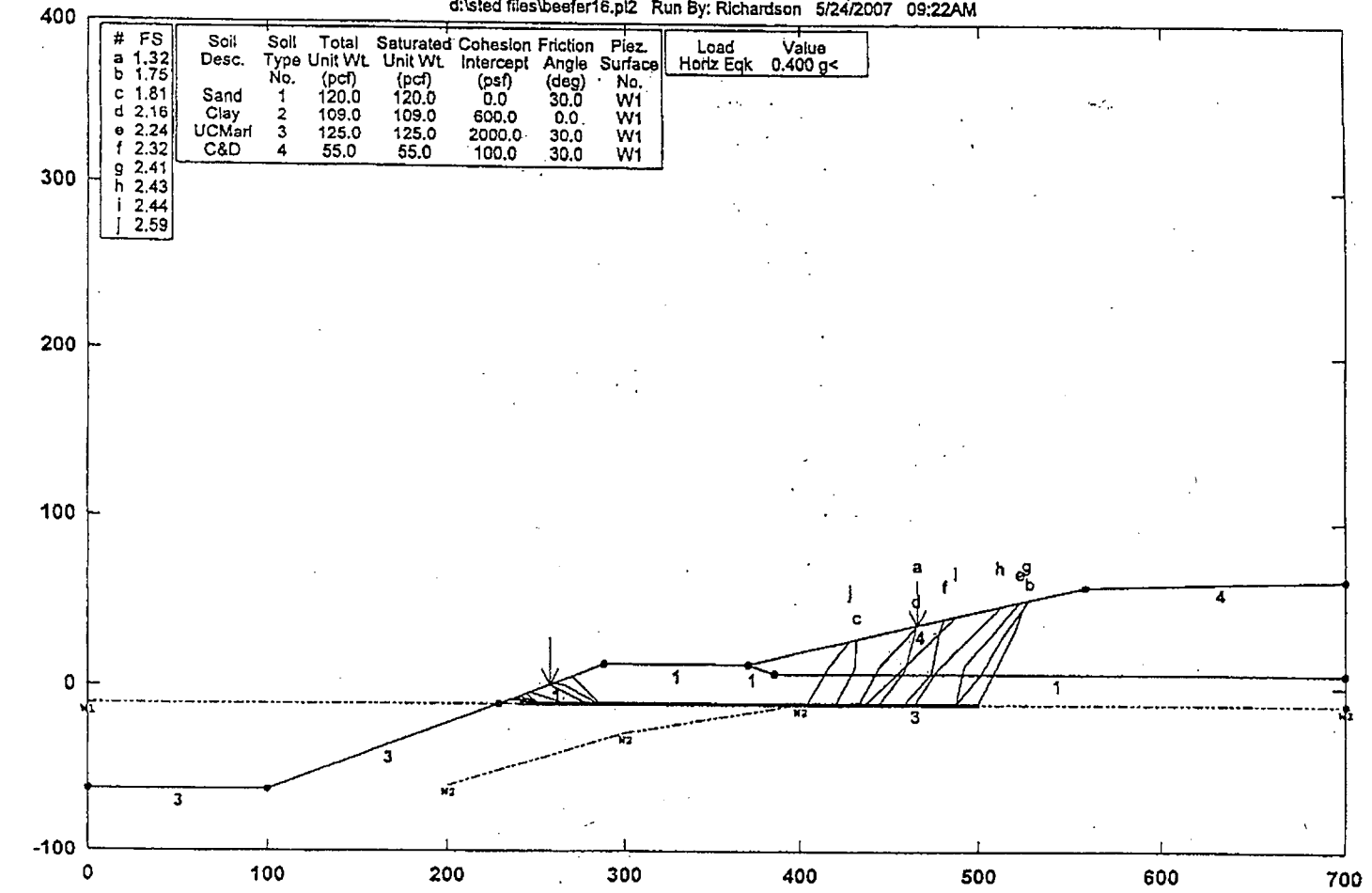
Stability Evaluations

Block Sliding Above UCM

C&D PERMIT 0151

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer16.pl2 Run By: Richardson 5/24/2007 09:22AM



STABL6H FSmin=1.32

Safety Factors Are Calculated By The Modified Janbu Method

STED

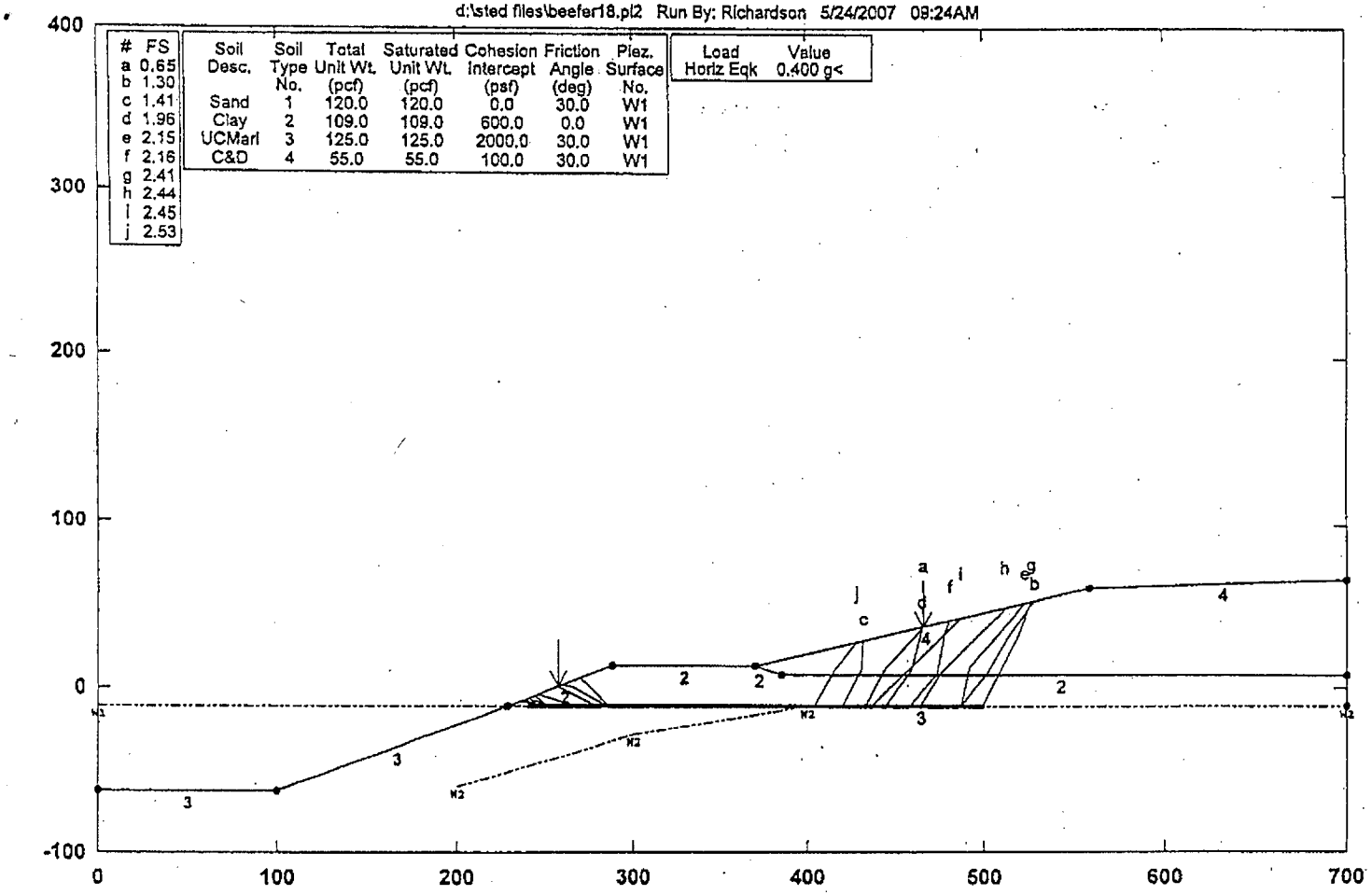


C&D PERMIT 0152

0318

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer18.pl2 Run By: Richardson 5/24/2007 09:24AM



STABL6H FSmin=0.65

Safety Factors Are Calculated By The Modified Janbu Method

STED



C&D PERMIT 0153

0319

Attachment Four

Stability Evaluations

Liquefaction of Silty Sands

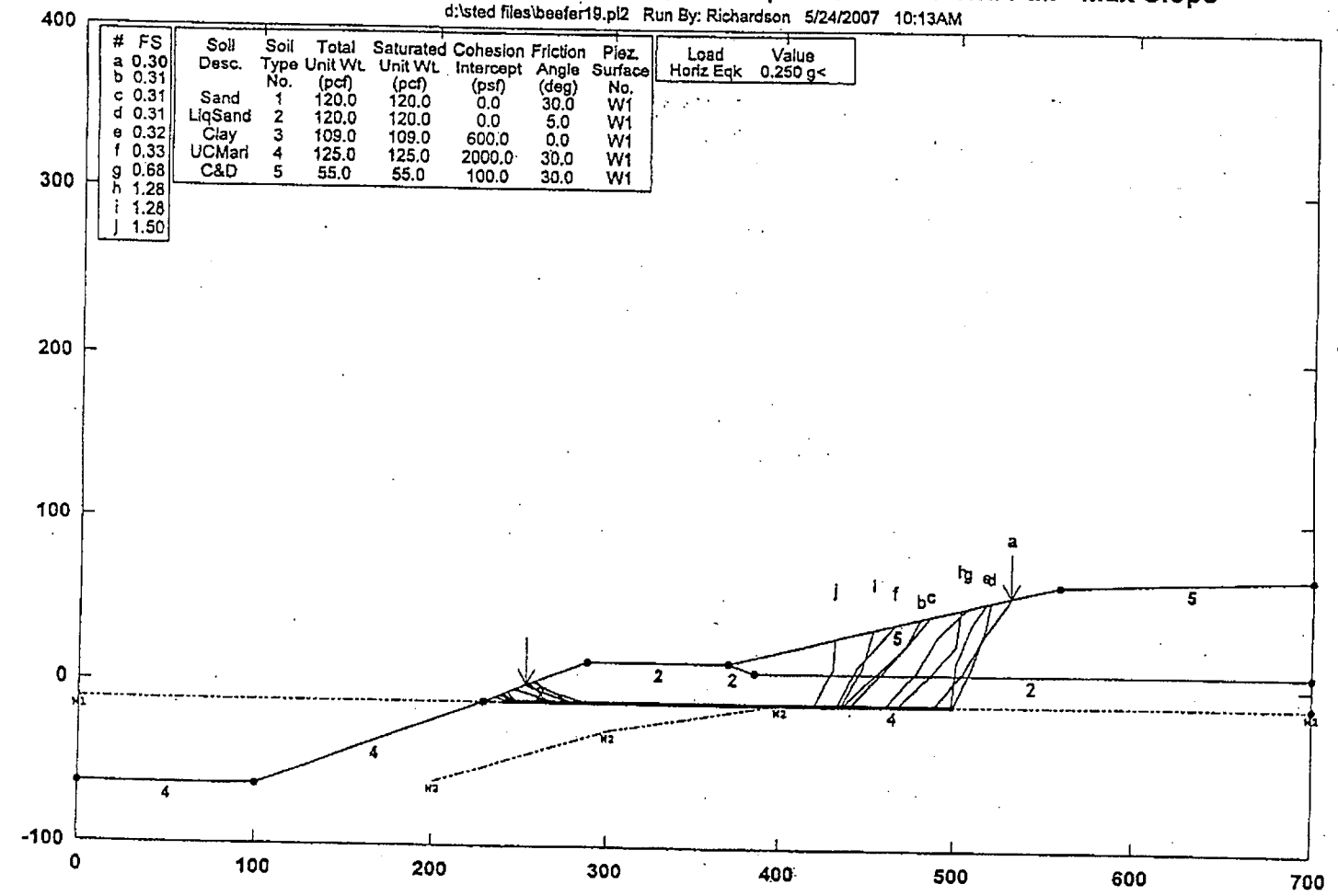
Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer19.pl2 Run By: Richardson 5/24/2007 10:13AM

#	FS
a	0.30
b	0.31
c	0.31
d	0.31
e	0.32
f	0.33
g	0.68
h	1.28
i	1.28
j	1.50

Soil Desc.	Soil Type No.	Total Unit Wt (pcf)	Saturated Unit Wt (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	30.0	W1
LiqSand	2	120.0	120.0	0.0	5.0	W1
Clay	3	109.0	109.0	600.0	0.0	W1
UCMarl	4	125.0	125.0	2000.0	30.0	W1
C&D	5	55.0	55.0	100.0	30.0	W1

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=0.30

Safety Factors Are Calculated By The Modified Janbu Method

STED

C&D PERMIT 0155

0321

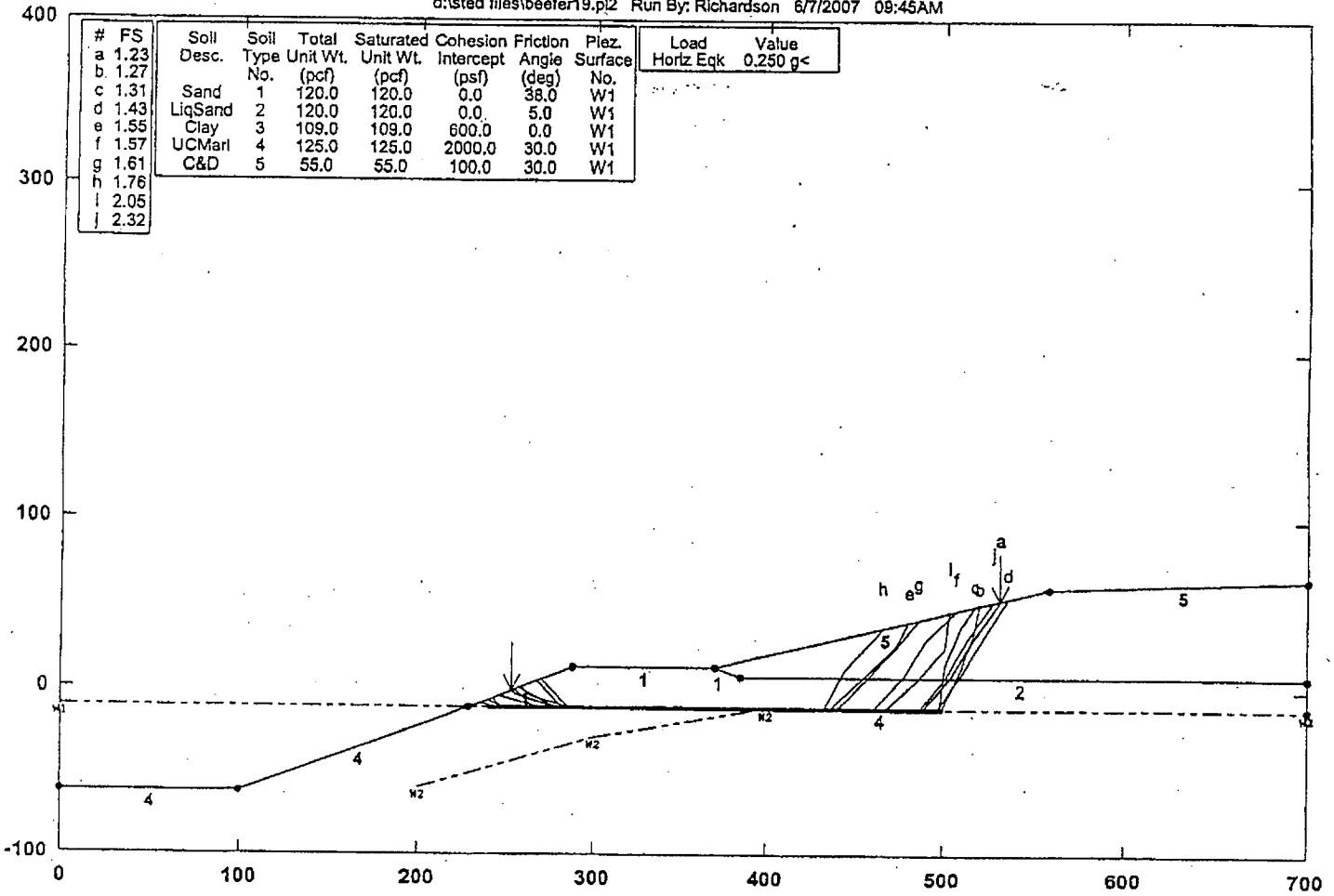
Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer19.pl2 Run By: Richardson 6/7/2007 09:45AM

#	FS
a	1.23
b	1.27
c	1.31
d	1.43
e	1.55
f	1.57
g	1.61
h	1.76
i	2.05
j	2.32

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	38.0	W1
LiqSand	2	120.0	120.0	0.0	5.0	W1
Clay	3	109.0	109.0	600.0	0.0	W1
UCMarl	4	125.0	125.0	2000.0	30.0	W1
C&D	5	55.0	55.0	100.0	30.0	W1

Load	Value
Horiz Eqk	0.250 g<



STABL6H FSmin=1.23

Safety Factors Are Calculated By The Modified Janbu Method

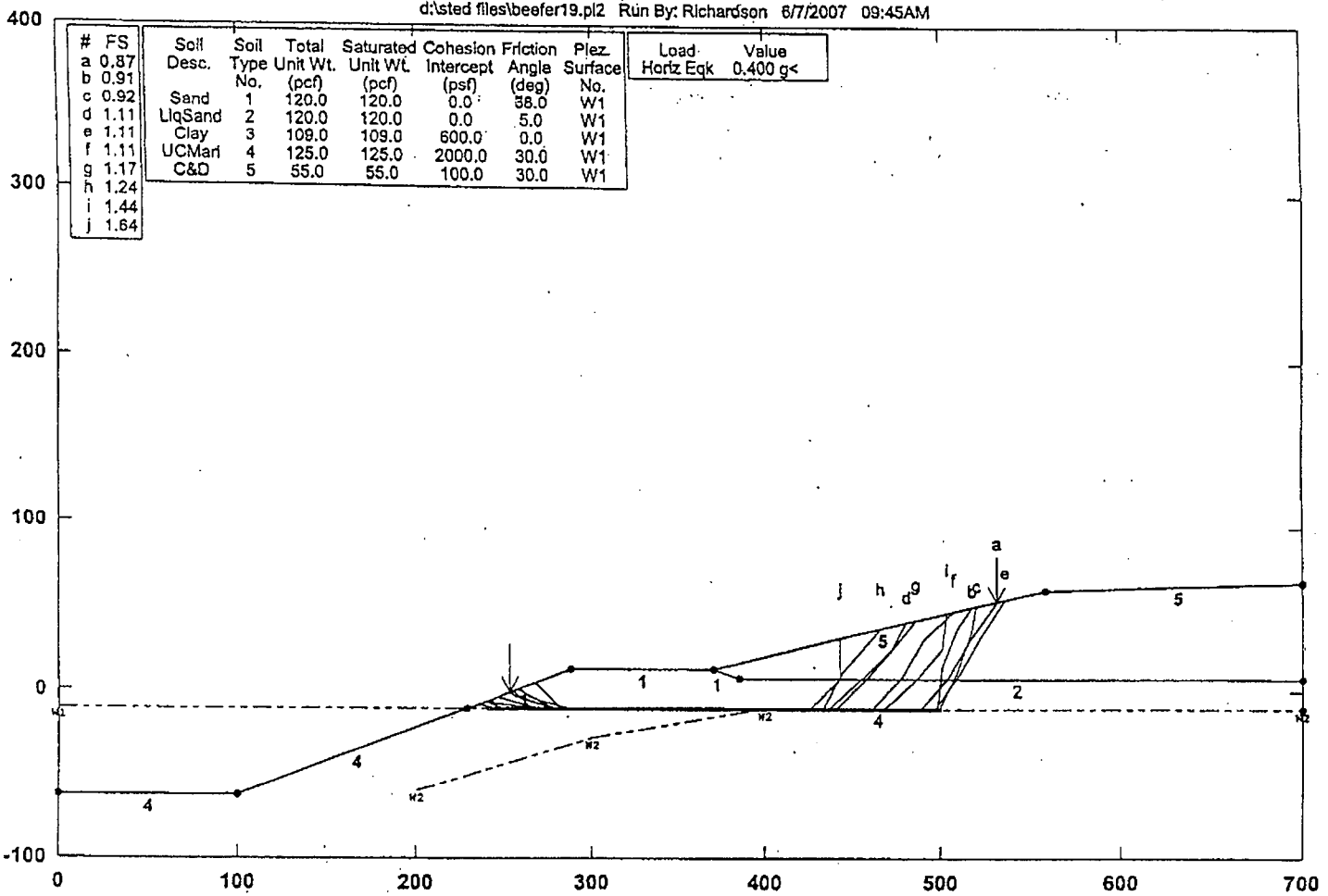
STED

C&D PERMIT 0156

0322

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer19.pl2 Run By: Richardson 6/7/2007 09:45AM



#	FS
a	0.87
b	0.91
c	0.92
d	1.11
e	1.11
f	1.11
g	1.17
h	1.24
i	1.44
j	1.64

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	38.0	W1
LiqSand	2	120.0	120.0	0.0	5.0	W1
Clay	3	109.0	109.0	600.0	0.0	W1
UCMari	4	125.0	125.0	2000.0	30.0	W1
C&D	5	55.0	55.0	100.0	30.0	W1

Load	Value
Horiz Eqk	0.400 g<

STABL6H FSmin=0.87

Safety Factors Are Calculated By The Modified Janbu Method

STED

C&D PERMIT 0157

0323

Attachment Five

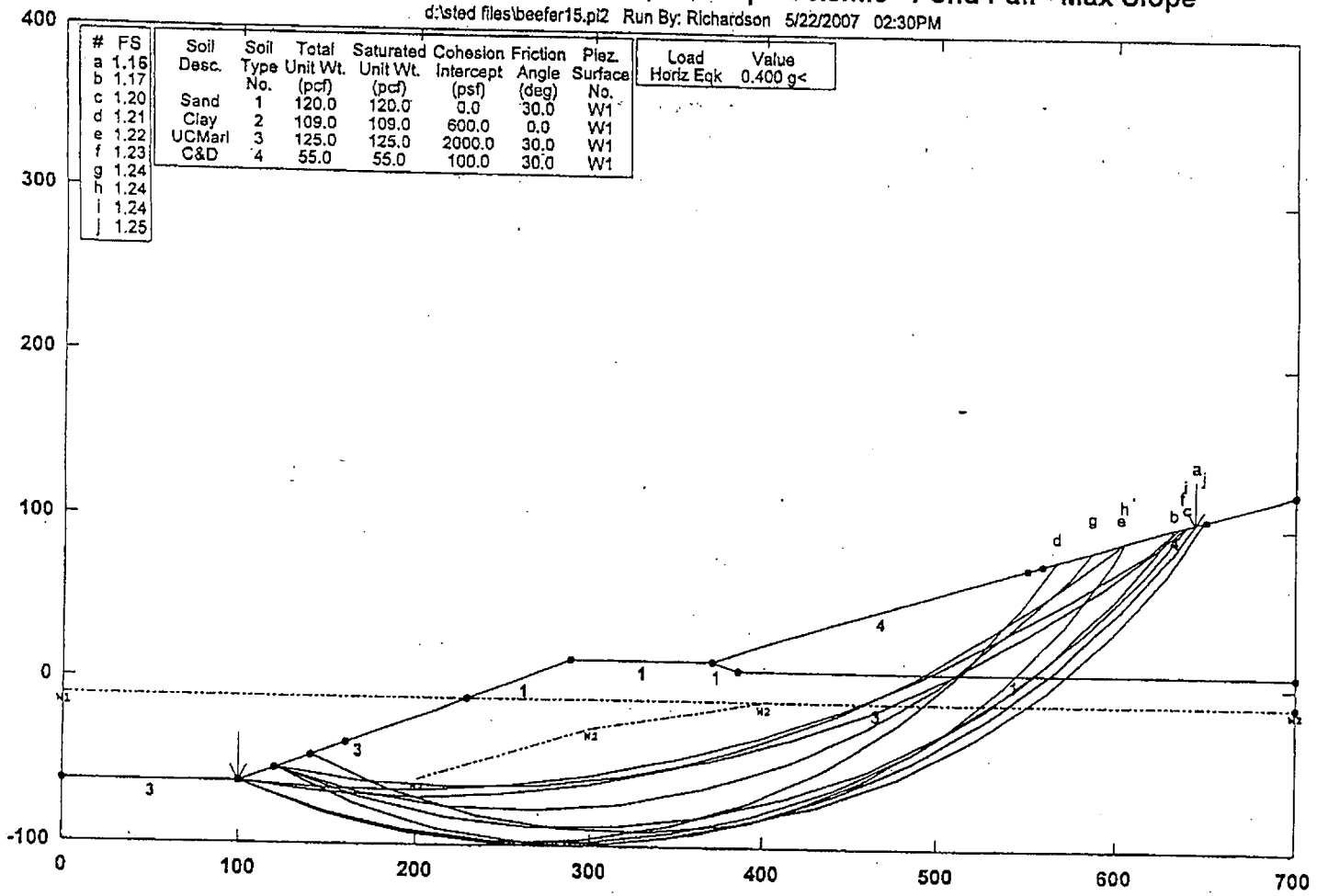
Stability Evaluations

Maximum Final Cover Profile

C&D PERMIT 0158

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer15.pl2 Run By: Richardson 5/22/2007 02:30PM



STABL6H FSmin=1.16

Safety Factors Are Calculated By The Modified Bishop Method

STED

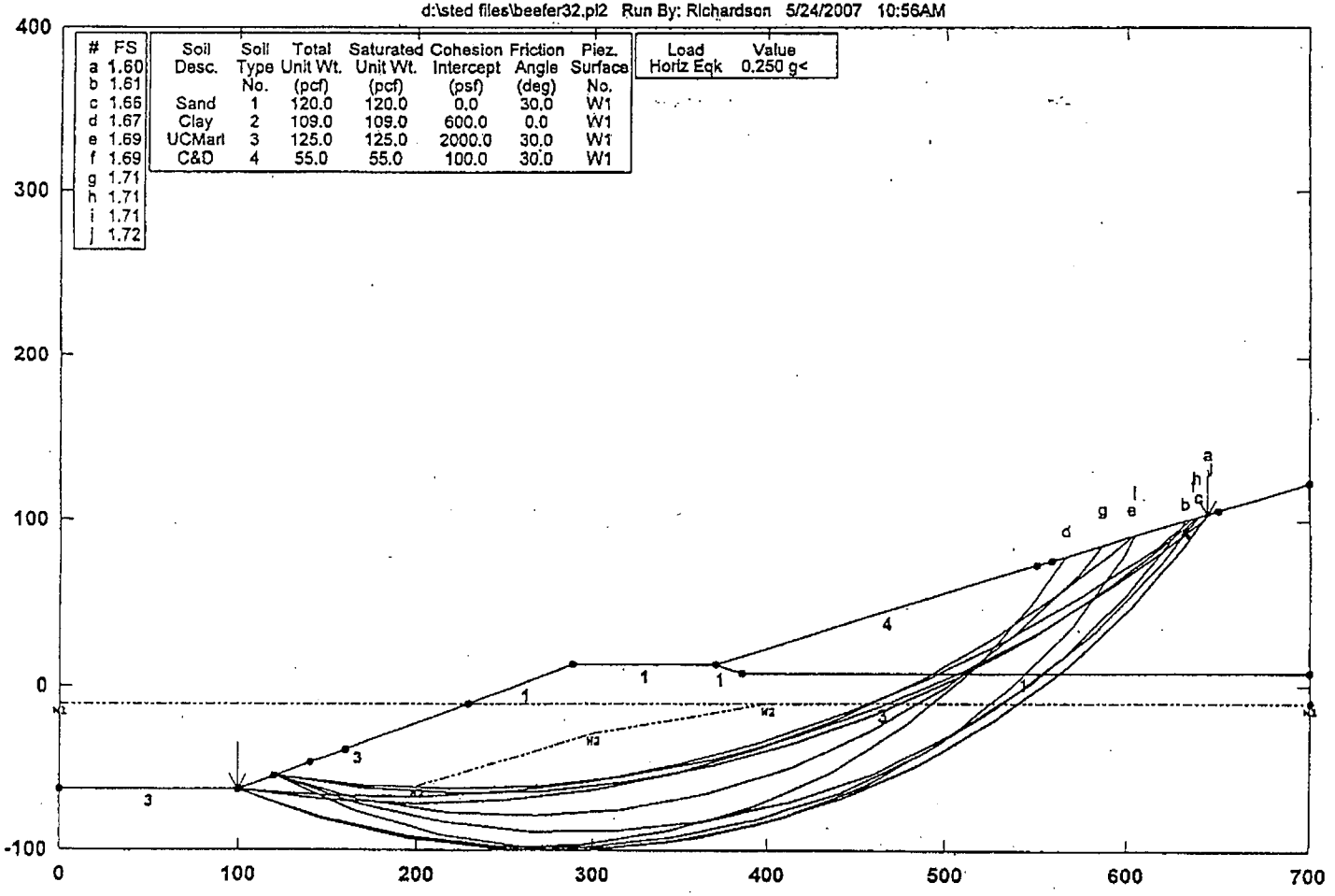


C&D PERMIT 0159

0325

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer32.pl2 Run By: Richardson 5/24/2007 10:56AM



#	FS
a	1.60
b	1.61
c	1.66
d	1.67
e	1.69
f	1.69
g	1.71
h	1.71
i	1.71
j	1.72

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Sand	1	120.0	120.0	0.0	30.0	W1
Clay	2	109.0	109.0	600.0	0.0	W1
UCMart	3	125.0	125.0	2000.0	30.0	W1
C&D	4	55.0	55.0	100.0	30.0	W1

Load	Value
Horiz Eqk	0.250 g<

STABL6H FSmin=1.60

Safety Factors Are Calculated By The Modified Bishop Method

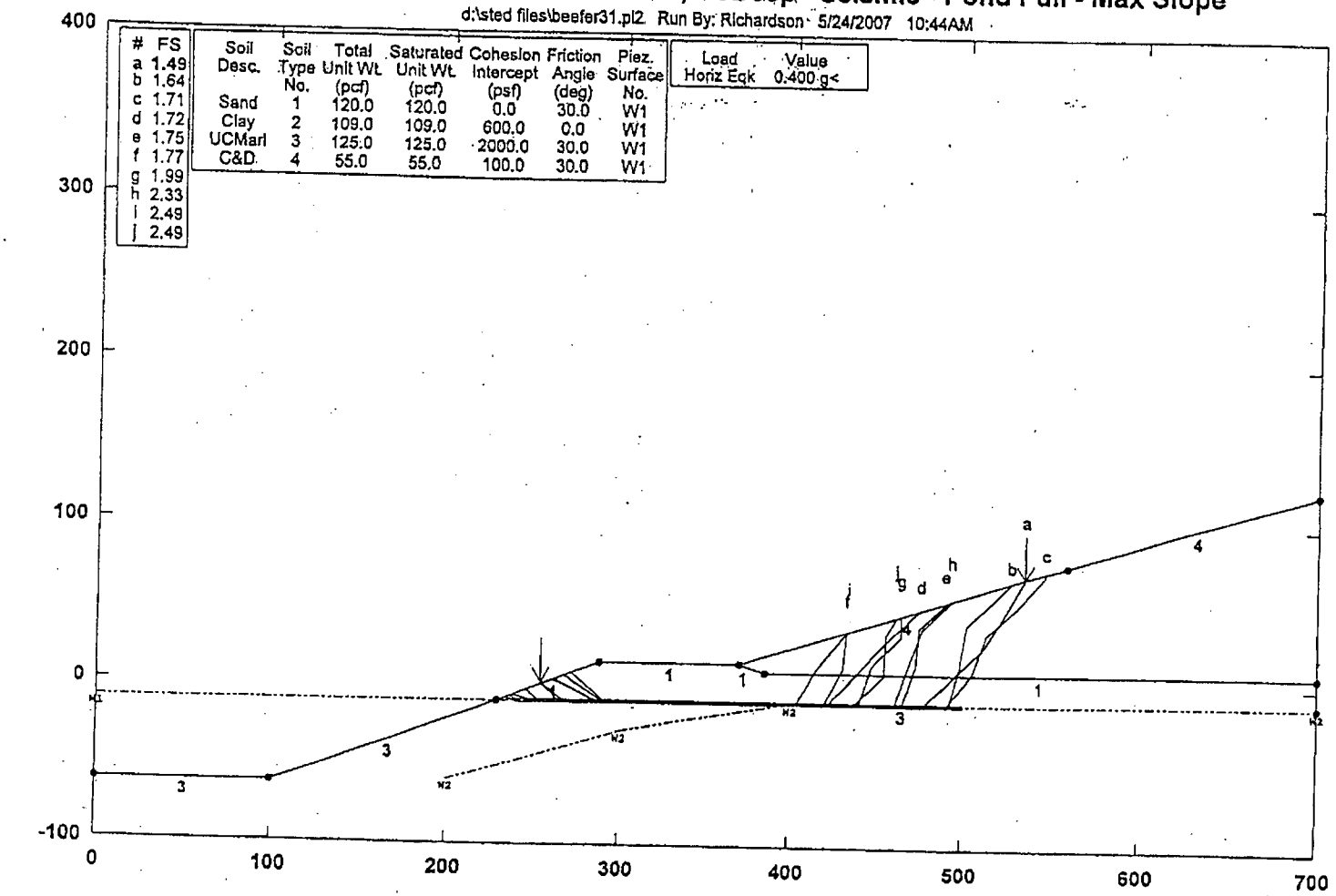
STED

C&D PERMIT 0160

0326

Bees Ferry C&D Landfill - Charleston, SCDeep - Seismic - Pond Full - Max Slope

d:\sted files\beefer31.pl2 Run By: Richardson 5/24/2007 10:44AM



STABL6H FSmin=1.49

Safety Factors Are Calculated By The Modified Janbu Method

STED



0327

C&D PERMIT 0161

Appendix I

ACCEPTABLE WASTE
FOR
CONSTRUCTION, DEMOLITION, AND LAND-CLEARING DEBRIS LANDFILLS

The following types of waste have been determined by the Department to be environmentally safe and may be accepted at construction, demolition & land-clearing debris landfills unless specifically prohibited by the Department. However, any of the materials listed in this appendix that have been painted with lead-based paint and/or have been in direct contact with hazardous constituents (e.g., pesticides, etc.), or petroleum products, are prohibited from disposal at a construction, demolition, and land-clearing debris landfill.

Acceptable Land-Clearing Debris Such As:

- earthen material, e.g., clays, sands, gravels, & silts
- logs
- tree stumps
- root mats
- top soil
- vegetation
- rock
- brush & limbs

Acceptable Construction & Demolition Debris Such As:

- structural steel
- bricks & blocks
- plaster & plasterboard
- shingles & roofing materials
- hardened/cured asphalt (2)
- pipes
- floor coverings
- other structural fabrics
- poly fiberglass (highly polished, cured material used for shower stalls, roofing, etc.)
- glass
- nonfriable asbestos-containing material (3)
- hardened concrete
- lumber
- insulation material
- floor, wall & ceiling tile
- hardened cement
- glass wire (optical fiber)
- wall coverings
- tires (1)
- other items physically attached to the structure, e.g., signs, mailboxes, awnings, etc.
- mirrors

(1) Tires shall be reduced in size by a minimum of one-eighth the size of the original tire prior to landfill disposal.

(2) Tar sealant material is not acceptable.

(3) Nonfriable asbestos-containing material which is in good condition and has not been handled in such a way as to render it a regulated material and thus subject to Bureau of Air Quality Control (BAQC) Regulation 61-86.1 (Standards of Performance for Asbestos Abatement Operations) and the National Emissions Standards for Hazardous Air Pollutants [40 CFR 61 Subpart M]) is acceptable. Record keeping of all asbestos-containing material shall be in accordance with Bureau of Air Quality Control Regulation 61-86.1 (Standards of Performance for Asbestos Abatement Operations) and the National Emissions Standards for

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Hazardous Air Pollutants [40 CFR 61, and Subpart M]). Prior to disposal of any nonfriable asbestos-containing material, the generator of the asbestos waste shall have a "permission for disposal" letter from the Department.

Appendix II

UNACCEPTABLE WASTE

The following types of waste have been determined to pose a potential threat to the environment and may not be accepted at construction, demolition & land-clearing debris landfills.

Any Waste That Has Been In Contact With Lead-Based Paint Such As:

- plaster & plasterboard
- concrete
- wall paper
- containers (cans, buckets, etc.)
- metal poles
- painting equipment
- mechanical parts
- lumber (siding,cabinets, shingles, etc.)

Any Waste That Has Been In Contact With Petroleum Products Such As:

- storage tanks
- pipes
- mechanical/machine parts
- absorbent (vermiculite)
- paper towels & rags
- containers
- filters (oil, etc.)
- soil
- concrete

Any Waste That Has Been In Contact With Friable Asbestos Material Such As:

- pipe insulation
- asbestos-cement products that have been crumbled/pulverized
- roofing material that has been cut with a saw
- broken/chipped floor tiles
- friable asbestos containing material

Any Waste That Has Been In Contact With Polychlorinated Biphenols (PCBs) Such As:

- transformers
- electrical components
- any waste that has come in contact with any liquid-containing PCBs
- capacitors
- lighting ballasts

Any Waste That Has Been In Contact With Solvents (industrial plants, chemical plants, laboratories, construction sites, etc.) Such As:

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- caulking compounds
- containers (packaging)
- filters
- pumps
- mechanical/machine parts (valves)
- flooring (wood, carpet)
- soil
- storage tanks
- paint thinner
- pipes
- vats
- adhesives
- cement
- cabinets (shelves)
- tar
- glazing compound
- absorbent

Any Waste That Has Been In Contact With Preservatives (pentachlorophenol & creosote) Such As:

- railroad ties
- soil
- any mechanical part used in manufacturing processes
- utility poles
- containers

Any Waste That Has Been In Contact With Pesticides/Herbicides Such As:

- containers (packaging)
- soil
- mechanical/machine parts
- any equipment used for application
- vats
- concrete
- wood (storage area)

Miscellaneous Waste Such As:

- lamps (mercury) (1)
- liquid waste (paint, paint thinner, etc.) & containers (paint cans, etc.)
- caulking tubes
- unpolished fiberglass (Bondo)
- solid waste which may contain a waste or substance determined by the Department to be unacceptable

(1) Fluorescent lamps and high intensity discharge (HID) lamps such as metal halide and mercury vapor lamps.

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