

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
SEP 30 2003
SOUTHWEST DISTRICT
TAMPA

**Response to Request for Additional Information
Operations Permit Renewal Application
Hardee County Landfill
Hardee County, Florida**

SCS ENGINEERS

ORIGINAL

Prepared for:

Hardee County
Board of County Commissioners
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Prepared by:

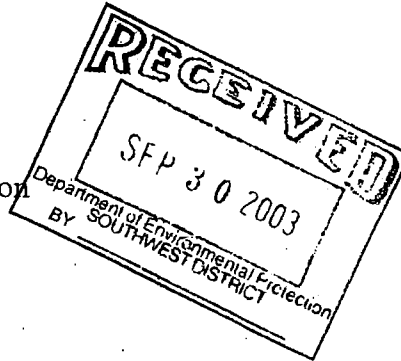
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File No. 09199033.08
September 30, 2003

SCS ENGINEERS

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Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619



Subject: Hardee County Landfill - Operation Permit
Pending Permit No.: 38414-007-SO, Hardee County

Dear Mr. Ford:

On behalf of Hardee County, SCS Engineers (SCS) submits the following responses to your request for additional information in a letter dated June 18, 2003. For ease of review, each FDEP comment is reiterated in bold type, followed by our response.

We have provided additional information and replacement pages attached to this letter, using a ~~strike through~~ and underline format, to facilitate review. We have included the revision date as part of the header/footer for all revised pages and provided an original and two copies of all revised materials.

The following information is needed in support of the solid waste application [Chapter 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

1. **62-701.300. Revisions to Section D are requested as follows:**
 - a) **Section D.2. - To explain that yard trash and the leachate storage tanks are subject to the prohibitions and to describe compliance with the prohibitions.**

Response: Changes have been made to Section D.2 in reference to Rule 62-701.300(12) and (13), F.A.C. Revised sheets are located in Attachment A-1. Figure 1, also located in Attachment A-1, depicts the 50-foot offset from Wetland Area No. 1 and the yard waste processing area and the leachate storage tank and the onsite well located immediately south of the maintenance building.

- b) **Section D.11. - To explain that used oil will not be accepted for disposal.**

Response: Used oil is not, and will not be disposed of within the landfill.



Changes have been made to section D.11 and reference Rule 62-701.300(8)(b), F.A.C. and are located in Attachment A-2.

2. **62-701.320(5)(b). A description and timeframe for applying for a construction permit for expansion and for a closure permit are requested.**

Response: SCS Engineers is in the process of developing an expansion plan for Hardee County's landfill. As part of the plan, the existing operation grading plan will be modified to match grading and drainage plans with future expansion plan as well as development of partial closure plans for northern and eastern sideslopes of the existing landfill. SCS will submit a schedule upon completion of the expansion layouts on behalf of Hardee County.

The expansion permit plans are currently being finalized and the proposed schedule for submittal to FDEP is by the end of October or early November of 2003. In addition, the County will be submitting partial closure permit application for the northern and eastern sideslope of the existing landfill in summer of 2004.

3. **62-701.320(7)(d)1. A cover page for the Engineering Report (just before the table of contents) signed and sealed by a professional engineer is requested.**

Response: The signed and sealed cover page is located in Attachment A-3.

4. **62-701.320(7)(f)6. A comprehensive set of Record Drawings are requested for the entire previously approved stormwater management system are requested.**

Response: The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting drawings from Envisors (dated 1982), Briley Wild and Associates (dated 1988), and Wade Trim (1994) for the existing stormwater management system at Hardee County Landfill. PBS&J drawings dated July 2000 are on file with the Department. The drawings are located in Attachment A-4. The contributing area, the entire landfill, remains the same as previously designed. SCS has completed supplemental calculations, contained in Attachment A-4, to verify the design of stormwater structures in the shown on the submitted operations plans. The overall stormwater management system for the site remains as designed by others.

5. **62-701.320(15). a) A list of all trained operators, and all trained spotters, including the hours of training completed by each is requested. b) A training plan with a list of courses to be attended and hours of training required for operators and spotters is requested.**

Response: Changes have been made to Section E.15, located in Attachment A-5, and reference Rule 62-701.320(15), F.A.C. Attachment A-5 also contains the hours of training completed by County personnel as well as a list of courses.

6. **62-701.330(1)(c). Documentation, or references to documents on file with the Department, to demonstrate that the landfill is "lined" are requested.**

Response: Per Rule 62-701.200 (69), F.A.C., a lined landfill is defined as "a landfill constructed with a liner made of synthetic materials, low-permeability soils, or a combination of these materials, which have been permitted by the Department, and which met the Department's landfill design criteria specified in this chapter or previous versions of this chapter at the time of permitting". FDEP has previously approved Solid Waste Permits for Hardee County, which contains information regarding the lined landfill area. The landfill sideslopes are lined with geosynthetics, which tie into a low permeability clay to form the waste disposal unit. Reference documents include drawings by Envisors (dated 1982) showing the clay bottom and geosynthetic sideslopes, Briley Wild and Associates (dated 1988) and Wade Trim (dated 1994) showing geosynthetic sideslopes. PBS&J Construction Permit Application, dated June 1994, specifically Appendix C of the application, contains permeability test results on the underlying clay strata. The clay permeabilities range from 4×10^{-7} to 6×10^{-8} centimeters per second.

7. **62-701.330(3)(d) and (j). Revisions to the operational drawings are requested to show the additional information listed below:**

Refer to response provided to Question 2.

- a) **The typical liner system detail, including the bottom and side liners, leachate collection/conveyance system, waste limits, future final cover, and the adjacent stormwater conveyances;**

Response: Please refer to the revised drawings contained in Attachment D.

- b) **The direction of filling for each working face disposal area;**

Response: Please refer to the revised drawings contained in Attachment D.

- c) **The design details for the typical slopes and perimeter berms to be maintained to drain stormwater and to contain leachate in the vicinity of each working face disposal area;**

Response: Please refer to the revised drawings contained in Attachment D.

- d) **Cross-sections to show lifts of waste as filling progresses including details for permanent terraces and permanent drainage devices;**

Response: Please refer to the revised drawings contained in Attachment D.

- e) **Sheet 4 - to show the correct manhole numbers, and with the precise location of the perimeter liner, manholes, and leachate collection/conveyance system;**

Response: Please refer to the revised drawings contained in Attachment D.

- f) **Sheet 5 - to show the slope of the terrace swale (at elevation +135 NGVD) with the direction of flow, and the related drainage features to convey the stormwater down the slope, and to show passive gas vent typical cross-section details and locations on the final cover plan view.**

Response: Please refer to the revised drawings contained in Attachment D. The passive gas venting system will be installed during partial closure of the landfill. Details of the vents will be submitted with the closure permit application.

- g) **Sheet 8 - to show the top liner on the cover system detail, to include a note on the south slope partial reconstruction detail to ensure that asbestos will not be disturbed due to waste excavation, and to include a note on the typical waste place detail to describe the placement of loose waste over bales.**

Response: Please refer to the revised drawings contained in Attachment D.

- h) **Sheet 9 - to include a note to describe that only clean soil fill will be used over intermediately covered areas as needed prior to the final grading of slopes and terraces.**

Response: Please refer to the revised drawings contained in Attachment D.

8. **62-701.400(2). A description of planned Hardee County Landfill construction and closure at planned intervals throughout the design period of the landfill is requested.**

Response: SCS Engineers is in the process of developing an expansion plan for Hardee

County's landfill. As part of the plan, the existing operation grading plan will be modified to match the future expansion plan. The existing landfill will be fill along the south side and along the eastern side. Minimal fill will be placed along the northern end of the landfill to allow placement of the stormwater terrace. As the eastside is filled the access road will be constructed to allow vehicle access to the top of the landfill. No filling will occur on the westside of the landfill.

The proposed expansion construction, along the southern and western sides of the existing landfill, will occur as the existing landfill is being filled. Upon completion and approval of the expansion area, the County will begin final grading of the southern and eastern sides of the existing landfill. Construction (placement of geomembrane) on the western and southsides of the existing landfill will occur while the County is filling the southern end of the expansion. Partial Closure construction of the northern and eastern sides of the existing landfill will occur upon completion and approval of the geomembrane placement along the west and south sides of the existing landfill. The County will then commence filling in the expansion area and filling along the sideslope of the existing landfill.

9. **62-701.400(4)(a). Documentation to demonstrate that the entire existing leachate collection and removal system complies with each of the requirements in Rule 62-701.400(4)(a) is requested. Additionally, the following items are requested:**

Response: The primary leachate collection system at Hardee County Landfill was previously designed and permitted by others. Per Rule 62-701.400(4)(a) F.A.C. and based upon available information (primarily record drawings, no construction completion reports were available) on the existing system, the following information is presented;

- 1) The leachate collection system is comprised of eight inch diameter corrugated polyethylene pipe, which is compatible with they typical municipal solid waste leachate.
- 2) The mechanical properties of the pipe were addressed in previously submitted and approved applications to the Department. The Florida Jetclean Inc. inspection and video also demonstrates that the leachate collection system can withhold the pressures exerted by waste, cover materials, and landfill equipment.
- 3) According to drawings prepared by Envisors, Briley Wild and Associates, Wade Trim, and PBS&J, the designs included a granular pack that encompasses the leachate collection pipe.

4) As stated in Specific Condition 17.g., the video inspection demonstrates that the pipes are not clogged. If at any time during the inspection the pipes were clogged, they were pressure washed to remove debris. Please review the Florida Jetclean Inc. video dated April 14, 2003 to see the pipes are not clogged.

a) **A comprehensive inspection report as required by Specific Condition #17.g., signed and sealed by a professional engineer.**

Response: Refer to the response to comment 9 and 9(e). The leachate collection system was video taped in its entirety and a report submitted by Florida JetClean. According to Specific Condition #17.g. of the Solid Waste Permit issued to Hardee County, the above-mentioned report does not need to be signed and sealed by a professional engineer.

b) **A drawing to scale showing all distances between manholes to match the distances indicated by Florida Jetclean Inc., or an appropriate explanation for each discrepancy.**

Response: As stated in the video provided by Florida Jetclean Inc., the counter, which measures the pipe length, was not consistently operating correctly. In addition, the locations of the manholes are currently being surveyed to confirm the exact locations relative to the landfill. The distances are shown on the scaled figure located in Attachment A-6. Florida JetClean has reviewed the tape again and found a significant measurement deviation when measuring from Manhole No. 7 to the lift station. This was due to the camera falling into the liftstation and subsequent efforts (involving the camera being moved back and forth) to recover the camera. SCS had the manhole locations surveyed and the distances are shown on Figure 1 in Attachment A-6. There remains a minor measurement differences between the Florida JetClean and Surveyed distances, however JetClean has reviewed the tapes in their entirety and has indicated that all leachate collection lines have been video tape their entire length.

c) **A drawing to scale showing the correct numbering for each manhole.**

Response: Prior to video taping the lines, the markers for the manholes were incorrectly labeled. See the revised Figure 1 of 1, Note 1 and the description notes for Manholes 8 and 9 of the Leachate Collection Line Report, located in Attachment A-6.

d) **A corrected Florida Jetclean report to include the correct numbering for each manhole.**

Response: See the revised Figure 1 of 1, Note 1 and the description notes for Manholes 8 and 9 of the Leachate Collection Line Report, located in Attachment A-6.

- e) **An explanation with conclusions and recommendations for each location of each pipe "separation" and "egg-shaped" distortion.**

Response: Based upon a review of the video the following conclusions and recommendations are made for each item;

Manhole 3 toward Manhole 2 – Possible separation at 7 feet

Conclusion: The pipe is approximately 7 to 8 feet below ground surface with no visible tree or stumps in the area, therefore roots are unlikely. It was concluded that this may be mold or miscellaneous debris or roots from initial installation.

Recommendation: The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003 so the system is function adequately.

Manhole 3 toward Manhole 2 – Possible separation at 237 feet

Conclusion: The pipe maybe separated along one side however it does not appear to be completely separated especially along the flowline. The camera was able to traverse through the pipe in this area. The size of the separation cannot be accurately estimated since an orange colored material covers the area. The orange colored material along the separation is probably iron mold which is consistent with slow seepage in high iron soils.

Recommendation: The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003 so the system is function adequately.

Manhole 2 toward Manhole 3 – Possible separation at 152 feet

Conclusion: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Recommendation: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Manhole 7 toward Lift Station – Pipe “Egg-Shaped”

Conclusion: During construction, the pipeline was being video taped when the camera became stuck in the pipe. The pipeline was excavated to retrieve the camera. During the re-construction of the pipeline, the pipe may have been slightly misshaped as a new snap coupling was applied. (Refer the PBS&J Construction Certification Documents (dated Jul 2000) – Volume 1 of 2 Section 1.24)

Recommendation: The pipe flowline is continuous and no clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried approximately 12 to 13 feet of soil and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. If pipe had sustained significant structural damage, then failure would have probably during backfill and compaction of the pipe trench. The recommendation is to leave the pipe in-place since a video camera can pass through the opening.

Manhole 7 toward Manhole 6 – Pipe separated

Conclusion: During construction, the pipeline was video taped and a restriction was noted. PSB&J approved the pipeline (Refer to Field Notes dated January 21, 2000 in PBS&J Construction Certification Documents Volume 1 of 2). It does appear that the pipe is separated. No clogs were reported in the 2003 video taping of the pipeline. Leachate is flowing from Manhole 6 to Manhole 7.

Recommendation: No clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried approximately 12 to 13 feet of soil and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. Leachate can still flow within the pipe. At this time the recommendation is to leave the pipe in-place, since the leachate collection system is functioning adequately at the time. The County has planned to repair this section of the pipe in conjunction with future expansion plans.

10. **62-701.400(6)(c)9. Documentation to demonstrate that each leachate storage tank has been inspected as required, and that each complies with the requirements in Rule 62-701.400(6) (c) is requested. Additionally, the following items are requested:**

Response: The tank material and tank operations have been previously reviewed and approved by FDEP.

- a) **A comprehensive inspection report as required by Specific Condition #17.j., signed and sealed by a professional engineer.**

Response: The operational components of the leachate storage tanks (pumps, ultra-sonic level indicator, tank material, and shut-off controls) was inspected by SCS Engineers and all components appear to be functioning adequately. TEAM tank inspectors has completed inspection of Tank No. 2 and is currently (as of September 29, 2003) awaiting for Tank No. 1 to be pressure cleaned for re-inspection. Tank No 1 will be cleaned by October 1, 2003. TEAM will make inspections on October 2, 2003. Upon receipt of the Final report from TEAM, SCS will issue a final inspection report. TEAM should be complete with the final report by October 31, 2003.

- b) **Confirmation that the proposed repair materials are compatible with the original coatings.**

Response: A confirmation by Columbian TecTank is located in Attachment A-7. Columbian TecTank certifies that the coating used by Columbian TecTank (Trico Bond 478) during the tank inspection is not only compatible with the existing coating (Thermo-Thane 7000) it is the same coating. Please see the attached confirmation.

- c) **The schedule for completing repairs and certification.**

Response: Refer to response to part (a) above.

11. **62-701.400(9). Copies of all permits, related calculations, and record drawings for the entire stormwater management system are requested. Documents on file with the Department may be referenced rather than resubmitted.**

Response: The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting drawings produced by Envisors, Briley Wild and Wade Trim for the existing stormwater management system at Hardee County Landfill as well as stormwater calculations for the existing stormwater management system produced by SCS Engineers. The drawings and calculations are located in Attachment A-4.

12. **62-701.400(11). Documentation to demonstrate that the current landfill design provides an equivalent degree of protection for the environment as would a similar landfill whose bottom liner is not in contact with groundwater is requested.**

Response: The entire existing disposal area was permitted in 1983. The Department has reviewed and approved the previous construction permits for the sideslope liners

and containment system design at Hardee County Landfill. The waste disposal area has been permitted and regularly filled since 1983 and based upon the last biennial report, submitted on May 16, 2003, no major groundwater impacts have been noted.

13. **62-701.410(2). All related geotechnical reports are requested. Documents on file with the Department may be referenced rather than resubmitted.**

Response: The Department has reviewed and approved previous construction permits, which includes a geotechnical report from PSI, dated March 10, 1997.

14. **62-701.430. Documentation to demonstrate that the vertical expansion from elevation ± 155 NGVD (based on previous geotechnical calculations) to elevation ± 164 NGVD (after final cover as noted on the proposed drawings) complies with each of the requirements in Rule 62-701.430 is requested.**

Response: SCS and Hardee County have reviewed the previously submitted operations plan and have revised the plans to better conform with proposed expansion plans for the landfill. As a result, the fill sequence plans were revised and are contained in Attachment D. The revised final buildout elevation of the existing landfill is approximately elevation ± 150 NGVD (elevation ± 153 NGVD with cap). Therefore the settlement and bearing capacity analyses submitted are still applicable. The sideslopes of the proposed revision have changed from 4(h):1(v) to 3(h):1(v). SCS has completed revised slope stability analyses for the proposed sideslope increase. The slope stability analyses is contained in Attachment A-8.

15. **62-701.500(1). Revisions to Section L.1 are requested to describe or reference a training plan with the listed courses and hours of training for operators and spotters to demonstrate compliance with 62-701.320(15).**

Response: Changes have been made to Section L.1 and reference Rule 62-701.500(1), F.A.C. The revised Section L is located in Attachment A-9.

16. **62-701.500(2). Revisions to the Operations Plan are requested to include the document title and date on each page. Revisions to the Section entitled Background Information are requested as follows:**

Response: Changes have been made to the Operations Plan to reflect the document title and date on each page. Section L is located in Attachment A-9.

- a) **include section numbers by each subheading;**

Response: Changes have been made to the Operations Plan located in Attachment A-9.

- b) **delete references to unrelated C&D debris disposal practices;**

Response: Changes have been made to the Operations Plan located in Attachment A-9.

- c) **provide reference to the MRF operation plan on file with the Department rather than resubmit (this application does not include a review of the MRF operations plan which is permitted separately);**

Response: The MRF Operations Plan is referenced within the Landfill Operations Plan.

- **include a description for the storage of batteries, paint, used oil and other special wastes under cover with spill containment.**

Response: The batteries, paint, used oil and other special wastes are stored in the Household Hazardous Waste Collection Center (HHWCC). This area is roofed and has a curb in order to contain spills should one occur. Used oil is consolidated into two double-walled oil tanks. Lead acid batteries are stacked three high on palettes, with cardboard placed between each layer, and then shrink wrapped. Only empty dried out paint cans are accepted throughout the year. If a can of paint is found by landfill personnel it is taken to the household hazardous waste facility for temporary storage in hazardous waste bunkers until removed from the site by the qualified contractor. Private contractors are hired for the removal of the special wastes such as the used oil, paint, lead acid batteries, and fluorescent light bulbs. Changes have been made to the Operations Plan located in Attachment A-9.

17. **62—701.500(2)(b). 1) Revisions to Section L.2.b. are requested for the following items:**

- a) **to describe procedures for responding to spills.**

Response: Liquids are not accepted at the landfill. If a liquid is identified, the hauler is asked to remove the liquid from the site. If a liquid is spilled, absorbent granules are placed on the spilled liquid. The absorbent granules are placed in barrels at the Household Hazardous Waste area until a private hauler can remove the material. Changes have been made to the Operations Plan located in Attachment A-9.

- b) **to describe agreements with adjacent counties for the disposal of waste in the event that the facility must remain closed for more than 48 hours is requested.**

Response: If the landfill is shut down for more than 48 hours, the Department will be notified. Hardee County Landfill has a contact list of Class I, Class III, and C&D landfills that neighbor the County. Through the "Small County Coalition", various counties will work together during a times of emergency. The contact list is located in Attachment A-10. Changes have been made to the Operations Plan located in Attachment A-9 to include a contact list of adjacent waste disposal facilities.

- c) **to describe procedures for managing "hotloads".**

Response: As per Rule 62-701.500(6)(b), F.A.C., if a "hotload" is identified, the Department will be promptly notified and the hauler identified from a license plate or by hauling records. A front-end loader separates the "hotload" from other waste while keeping it within the lined area and marking it with applicable markers. The "hotload" will be covered and a perimeter berm will be placed around the "hotload" to minimize contact with stormwater. Covers include a 20-mil Visqueen rolls, which are available at the Household Hazardous Waste Collection Center. Hardee County will contact the person/entity who dumped the "hotload" and request removal within 48 hours. If the 48 hours expire without removal, Hardee County will separate clean materials that can be segregated onsite. The County will contact an independent waste hauler for proper disposal of the "hotloads" at a permitted hazardous waste management facility. Changes have been made to the Operations Plan located in Attachment A-9.

18. **62-701.500(2)(c). Revisions to Section L.2.c. are requested to describe the following items:**

- a) **procedures for the disposal of asbestos;**

Response: Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

- b) **for inspection of each load and the procedures for the removal each type of unacceptable waste from the working face;**

Response: Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

c) **procedures for the disposal of contaminated soil.**

Response: Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

19. **62-701.500(2)(f). Revisions to Section L.2.f. are requested to describe the procedures for the daily disposal of both loose waste and baled waste at one or two working faces.**

Response: Changes have been made to Section L.2.f to reflect Rule 62-701.500(2)(f), F.A.C. The revised Section L is located in Attachment A-9.

20. **62-701.500(2)(j). Revision to Section L.2.j. is requested to include a procedures for inspecting the overfill protection system for each tank.**

Response: As part of the Leachate Management Program, Hardee County personnel monitor the amount of liquid entering the tanks at the control panel. Routine inspections include:

- Inspection of flow meters to ensure proper operation.
- Examining the overflow pipes in Tank 1 for obstructions.
- Monitoring the liquid levels in both tanks.

The overfill protection system is as follows:

- 1.) Tank 1 is filled by the pump station located at Manhole 8 (MH-8). If the liquid level rises above the overflow pipe in Tank 1, the flow is diverted to Tank 2.
- 2.) As Tank 2 fills and equalizes with Tank 1, the two tanks fill simultaneously.
- 3.) As both tanks continue to fill, each tank has a final overflow pipe, which allows liquid to flow into the containment area for each individual tank. Changes have been made to Section L.2.j to reflect Rule 62-701.500(2)(j), F.A.C. Section L is located in Attachment A-9.

21. **62-701.500(6). Revisions to Section L.6 are requested to describe a loose waste disposal load checking program and procedures for managing all unacceptable waste and special wastes.**

Response: Changes have been made to Section L.6 to reflect Rule 62-701.500(6), F.A.C. Section L is located in Attachment A-9.

22. 62-701.500(7)(a). Revisions to Section L.7.a. are requested for the following items:

- a) **to describe a lift of bales not more than three high;**

Response: Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

- b) **to provide a figure for the bale layout;**

Response: Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

- c) **to describe compaction procedures for loose waste.**

Response: Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

23. 62-701.500(7)(c). Revision to Section L.7.d. are requested for the following items:

- a) **to describe the typical minimum top slope to drain;**

Response: The minimum top slope is sufficient to allow surface water runoff and minimize ponding. The slopes will vary with daily operations. The typical minimum slopes are 0.10 to 0.25 percent. Changes have been made to Section L.7.d, located in Attachment A-9 to reflect Rule 62-701.500(7)(c), F.A.C.

- b) **to describe a lift of bales not more than three high;**

Response: Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(c), F.A.C. Section L is located in Attachment A-9.

- c) **to describe loose waste added to achieve the designed slopes.**

Response: Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(c), F.A.C. Section L is located in Attachment A-9.

24. 62-701.500(7)(d). Revisions to Section L.7.d. are requested to describe a berm around the working face to contain leachate, and one or two working faces.

Response: Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(d), F.A.C. Section L is located in Attachment A-9.

25. **62-701.500(7)(e) and (f). Revisions to Sections L.7.e. and L.7.f. are requested to describe the initial cover as "6-inches of compacted cover material", and to describe all other proposed initial cover materials.**

Response: Changes have been made to Section L.7.e. and L.7.f to reflect Rule 62-701.500(7)(e) and (f), F.A.C. Section L is located in Attachment A-9.

26. **62-701.500(7)(g). Revisions to Section L.7.g. are requested to describe the following items:**

- a) **to describe the typical minimum top slope to drain;**

Response: The minimum top slope is sufficient to allow surface water runoff and minimize ponding. The slopes will vary with daily operations. The typical minimum slopes are 0.10 to 0.25 percent. Changes have been made to Section L.7.g., located in Attachment A-9, to reflect Rule 62-701.500(7)(g), F.A.C.

- b) **to describe the construction of a berm around the working face to contain leachate;**

Response: Berms and swales on the working face, shown on the Permit drawings, are maintained to prevent leachate runoff from the working face from entering the stormwater management system as stated in the existing solid waste permit. Changes have been made to Section L.7.g. to reflect Rule 62-701.500(7)(g), F.A.C. Section L is located in Attachment A-9.

- c) **to explain that soil with any waste cannot be used as intermediate cover, or anywhere outside of the bermed working face disposal area.**

Response: Soils containing any waste cannot be used as intermediate cover and must be placed within the lined and bermed working face to prevent stormwater runoff contamination. Changes have been made to Section L.7.g. to reflect Rule 62-701.500(7)(g), F.A.C. Section L is located in Attachment A-9.

27. **62-701.500(7)(h). Revisions to Section L.7.h. are requested to describe a timeframe for applying for a closure permit and for completing closure, and to describe the areas that are already completely filled to match the proposed cross-sections.**

Response: Changes have been made to Section L.7.h. to reflect Rule 62-701.500(7)(h), F.A.C. Section L is located in Attachment A-9.

28. **62-701.500(7)(j). Revisions to Section L.7.h. are requested to describe the removal of litter from outside of the working face within 24 hours.**

Response: Changes have been made to Section L.7.j. to reflect Rule 62-701.500(7)(i), F.A.C. Section L is located in Attachment A-9.

29. **62-701.500(8). a) Revisions to Section L.8.a. are requested to describe the landfill performance criteria to demonstrate that all leachate is removed from the landfill. b) Revisions to Section L.8.b. are requested to describe the design of the existing leachate collection system and the method of filtering the contained surface leachate prior to pumping it to a manhole. c) Revisions to Section L.8.B. are requested to describe the tank and truck loading procedures and tank inspections.**

Response:

- a) Refer to Attachment A-9 for revisions to the Operations Plan. Revision include a discussion on how to use the interior piezometers to estimate leachate levels within the disposal area.
- b) Surface water runoff that comes in contact with solid waste is considered leachate. Surface water flows to low areas, which allows for percolation. If this low area is needed for operational purposes, the liquid is pumped to the nearest manhole to minimize pumping the surface debris into the manhole. The County uses a screened suction intake or will place hay bales or silt fence around the suction intake. Changes have been made to Section L.8.b., located in Attachment A-9, to reflect Rule 62-701.500(8)(b), F.A.C.
- c) Refer to Attachment A-9 for revisions to the Operations Plan.
30. **62-701.500(9) and 62-701.530. Revisions to Section L.9. are requested for the following items:**
- a) **to describe precautions to be taken when entering or, servicing areas where dangerous gases may have accumulated;**

Response: Changes have been made to Section L.9, located in Attachment A-9. Upon entering areas with landfill gas (LFG), the following procedure should be followed in order to ensure worker safety:

- Ventilate the area if possible.
- Monitor the ambient air within the area at all times, using a hand-held or personal monitoring device.

b) to describe the gas monitoring location within buildings;

Response: Gas monitoring will be conducted at foundation penetrations, enclosed spaces such as ground-level cabinets, or electrical control boxes, outlets and openings to conduits. Changes have been made to Section L.9, located in Attachment A-9.

c) to reference the gas monitoring report form;

Response: The LFG Monitoring Form is located in Attachment A-9. The gas form includes the required monitoring locations, date and time of the sampling event, weather conditions, and methane content measured.

d) to provide a detail for the construction of the gas probes;

Response: The Department has previously revised and approved the construction of the gas probes at Hardee County. Please refer to the Post, Buckley, Schuh, & Jernigan drawings dated June 1997, which is on file at the Department, for a detail of the gas probes.

e) to describe the gas monitoring sampling procedures;

Response: LFG is monitored in accordance with Rule 62-701.530, F.A.C. and the permit (No. 38414-002-SO). The permit requires that LFG be monitored quarterly and all results submitted to the Department. LFG is monitored with the following procedure:

- (i) Calibrate the field instrument, or check the calibration per the instrument's factory settings.
- (ii) Monitor probes (GP-1 through GP-11) and on-site structures, which include the maintenance building, materials recovery facility, scalehouse, and animal control kennel for methane per Rule 62-701.530(2), F.A.C.
- (iii) Record data on the LFG Monitoring Form, located in Attachment A-9, Operations Plan. Changes have been made to Section L.9, located in Attachment A-9.

f) to describe the type of gas monitoring meter.

Response: Gas monitoring at the Hardee County Landfill will be performed using the appropriate hand-held gas-monitoring device capable of measuring and

reporting methane as a percent by volume in air or as a percentage of the lower explosive limit (LEL) for methane. Hardee County currently owns a X-Check Gas Detector for LFG monitoring. Other industry-standard equipment also may be utilized.

31. **62-701.500(10). Revisions to Section L.10. are requested a) to describe the entire stormwater system design and operation, and b) to provide references for all record drawings for the entire stormwater management system. Documents on file with the Department may be referenced rather than resubmitted.**

Response: Changes have been made to Section L.10, located in Attachment A-9.

- a) Changes have been made to Section L.10, located in Attachment A-9.
- b) The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting the Wade Trim drawing set, which appears to coincide with the existing stormwater management system at Hardee County Landfill.

32. **62-701.500(11)(f). Revisions to Section L.11.f. are requested to describe the removal of litter from outside of the working face within 24 hours.**

Response: Changes have been made to Section L.11.f., located in Attachment A-9, to reflect Rule 62-701.500(7)(i), F.A.C.

33. **62-701.410, .500, and .510. Responses to each of the items in Mr. John Morris' June 12, 2003 memorandum (attached) are requested. You may call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.**

Response: Please see responses to Mr. Morris' memorandum in Appendix B.

34. **62-701.630. Responses to each of the items in Mr. Steve Morgan's June 17, 2003 letter (attached) are requested. You may call Mr. Morgan at (813) 744-6100, extension 385 to discuss the items in his letter.**

Response: Please see responses to Mr. Morgan's letter in Appendix C.

Mr. Kim B. Ford, P.E.
September 30, 2003
Page 19

Please call if you have any questions.

Sincerely,



Joseph O'Neill, P.E.
Project Manager
SCS ENGINEERS

JHO/RJD:jlh

Attachments



Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEERS

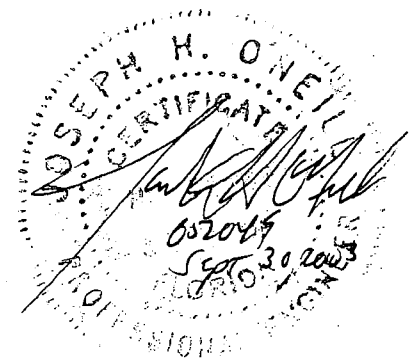


TABLE OF CONTENTS FOR ATTACHMENTS

Attachment

- A-1 Revised Section D.2
- A-2 Revised Section D.11
- A-3 Revised Cover Page
- A-4 Stormwater Management System Calculations and Drawings
- A-5 Revised Section E.15
- A-6 Revised Figure 1 of 1 Videotape
- A-7 Leachate Tank Coating Confirmation
- A-8 Slope Stability Analysis
- A-9 Revised Operations Plan
- A-10 Neighboring Landfills Contact List
- B-1 Revised Permit Application Form
- B-2 Revised Figure H-1 (See Appendix H for the Operations Plan)
- B-3 Revised Spreadsheet S for MW-1, MW-2, MW-4, & MW-9 of the Biennial Groundwater Monitoring Evaluation
- B-4 Revised Page 3-1 of the Biennial Groundwater Monitoring Evaluation
- B-5 Revised Iron Trend Analysis Chart of the Biennial Groundwater Monitoring Evaluation
- B-6 Revised Table 4-1, Figure E-6 & Figure E-9 of the Biennial Groundwater Monitoring Evaluation
- B-7 Revised Page 4-3 of the Biennial Groundwater Monitoring Evaluation
- B-8 Revised Page 5-2 of the Biennial Groundwater Monitoring Evaluation
- B-9 Revised Page 5-3 of the Biennial Groundwater Monitoring Evaluation
- B-10 Revised Page 6-1 of the Biennial Groundwater Monitoring Evaluation
- B-11 Revised Page 6-2 of the Biennial Groundwater Monitoring Evaluation
- B-12 Revised Page 6-3 of the Biennial Groundwater Monitoring Evaluation
- B-13 Revised Page 2 of the Water Quality & Leachate Monitoring Plan
- B-14 Revised Page 3 of the Water Quality & Leachate Monitoring Plan
- B-15 Revised Page 4 of the Water Quality & Leachate Monitoring Plan
- B-16 Revised Page 5 of the Water Quality & Leachate Monitoring Plan
- B-17 Revised Section N.4
- B-18 Revised Permit Application Form
- B-19 Revised Section O.3
- C-1 Revised Financial Assurance Form
- C-2 Revised Financial Assurance Calculations
- D Revised Permit Drawings (Provided Separately)

ATTACHMENT A-1
REVISED SECTION D.2

ATTACHMENT A-2
REVISED SECTION D.11

ATTACHMENT A-3
REVISED COVER PAGE

ATTACHMENT A-4

**STORMWATER MANAGEMENT SYSTEM
CALCULATIONS AND DRAWINGS**

Pre-Development Stormwater Calculations

Summary Outline of Pre Development Stormwater Calculations

The predeveloped conditions of the site consist of pasture and a wooded bayhead. A stormwater model was conducted to determine the amount of stormwater that can be discharged from the site for developed conditions.

The time of concentration for the site was determined from the TR-55 method. The time of concentration was determined by scaling the longest path a water drop would flow from the site; the time of concentration paths are located on the Basin Delineation Maps within this attachment. The two alternatives for the time of concentration are presented in this attachment. The time of concentration used within the model for predeveloped conditions for the site is as follows:

- Basin 1 has a time of concentration of 4.36 hours (261.6 minutes).
- Basin 2 has a time of concentration of 4.37 hours (262.2 minutes).
- Basin 3 has a time of concentration of 3.28 hours (196.8 minutes).

The rainfall maps for the 2-year/24 hour and the 25-year/24 hour storm events are included in this section. This information is pertinent for determining time of concentration and the amount of basin runoff.

- 2-year/24 hour storm event 4.1 inches of runoff
- 25-year/24 hour storm event 8.2 inches of runoff

The curve numbers used within the model, for the pasture is 74. The soil hydrologic group is a type C. Group C soils have a low infiltration rate when wetted, therefore explaining the curve number value of 74.

The stormwater model results are summarized as follows:

- The 25-year/24 hour storm event
 - Predevelopment discharge = 123.35 cfs
 - Time of maximum flow = 15 hours

ENGINEERING CERTIFICATION

The stormwater calculations contained in this Attachment have been performed under my direct supervision and reviewed by me.

Joseph H. O'Neill, P.E.
Florida Registered Engineer
Florida P.E. Number 052049

Input Report
Hardee County Landfill
Predeveloped Conditions
25-Year, 24-Hour Storm Event

=====
Basins
=====

Name: BASIN 1 Node: DISCHARGE POINT Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 261.60
Area(ac): 67.000 Time Shift(hrs): 0.00
Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Basin delineation obtained from a USGS Map and proposed contours (see Sheet 15)

See Sheet 14 for the location of Basin 1.

Name: BASIN 2 Node: Bayhead Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 262.20
Area(ac): 55.000 Time Shift(hrs): 0.00
Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

See Sheet 6 for time of concentration calculations.

See Sheet 14 for the location of Basin 2.

Name: BASIN 3 Node: DISCHARGE POINT Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 196.80
Area(ac): 43.000 Time Shift(hrs): 0.00
Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

See Sheet 14 for the location of Basin 3.

=====
Nodes
=====

Name: Bayhead Base Flow(cfs): 0.000 Init Stage(ft): 78.000
Group: BASE Warn Stage(ft): 82.000
Type: Stage/Area

Represents the Bayhead located on the east portion of the site. Stage/Area values obtained from the current topographic survey.

Stage(ft)	Area(ac)
78.000	0.1300
79.000	3.0000
80.000	7.7000
81.000	12.6000
82.000	15.4000

Name: DISCHARGE POINT Base Flow(cfs): 0.000 Init Stage(ft): 77.000
Group: BASE Warn Stage(ft): 85.000
Type: Time/Stage

Represents the existing discharge point located on the south end of the site.

BOUNDARY NODE FOR PREDEVELOPMENT CALCULATIONS

Time (hrs)	Stage (ft)
0.00	77.000
99999.00	77.000

=====
Channels
=====

Name: CHANNEL From Node: Bayhead Length(ft): 1250.00
Group: BASE To Node: DISCHARGE POINT Count: 1
UPSTREAM DOWNSTREAM Friction Equation: Average Conveyance

Input Report
 Hardee County Landfill
 Predeveloped Conditions
 25-Year, 24-Hour Storm Event

Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert (ft): 78.000	77.000	Flow: Both
TClpInitZ (ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.035000	0.035000	Expansion Coef: 0.000
Top Clip (ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip (ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1 (ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2 (ft):		
Aux XSec2:		
Top Width (ft):		
Depth (ft):		
Bot Width (ft): 10.000	10.000	
LtSdSlp (h/v): 6.00	6.00	
RtSdSlp (h/v): 6.00	6.00	

This channel carries stormwater runoff from the Bayhead to the discharge point. See sheet 13 for Manning's N values.

=====
 Hydrology Simulations
 =====

Name: PRESTORM
 Filename: F:\PROJECT\Hardee\09199033.09\ERP\predeveloped\PRESTORM.R32

Override Defaults: No

Time (hrs)	Print Inc (min)
30.000	2.00

=====
 Routing Simulations
 =====

Name: PRESTORM Hydrology Sim: PRESTORM
 Filename: F:\PROJECT\HARDEE\09199033.09\ERP\PREDEVELOPED\PRESTORM.I32

Execute: Yes Restart: No Patch: No
 Alternative: No

Max Delta Z (ft): 1.00	Delta Z Factor: 0.05000
Time Step Optimizer: 10.000	End Time (hrs): 30.00
Start Time (hrs): 0.000	Max Calc Time (sec): 60.0000
Min Calc Time (sec): 0.5000	Boundary Flows:
Boundary Stages:	

Time (hrs)	Print Inc (min)
30.000	15.000

Group	Run
BASE	Yes

=====
 Boundary Conditions
 =====

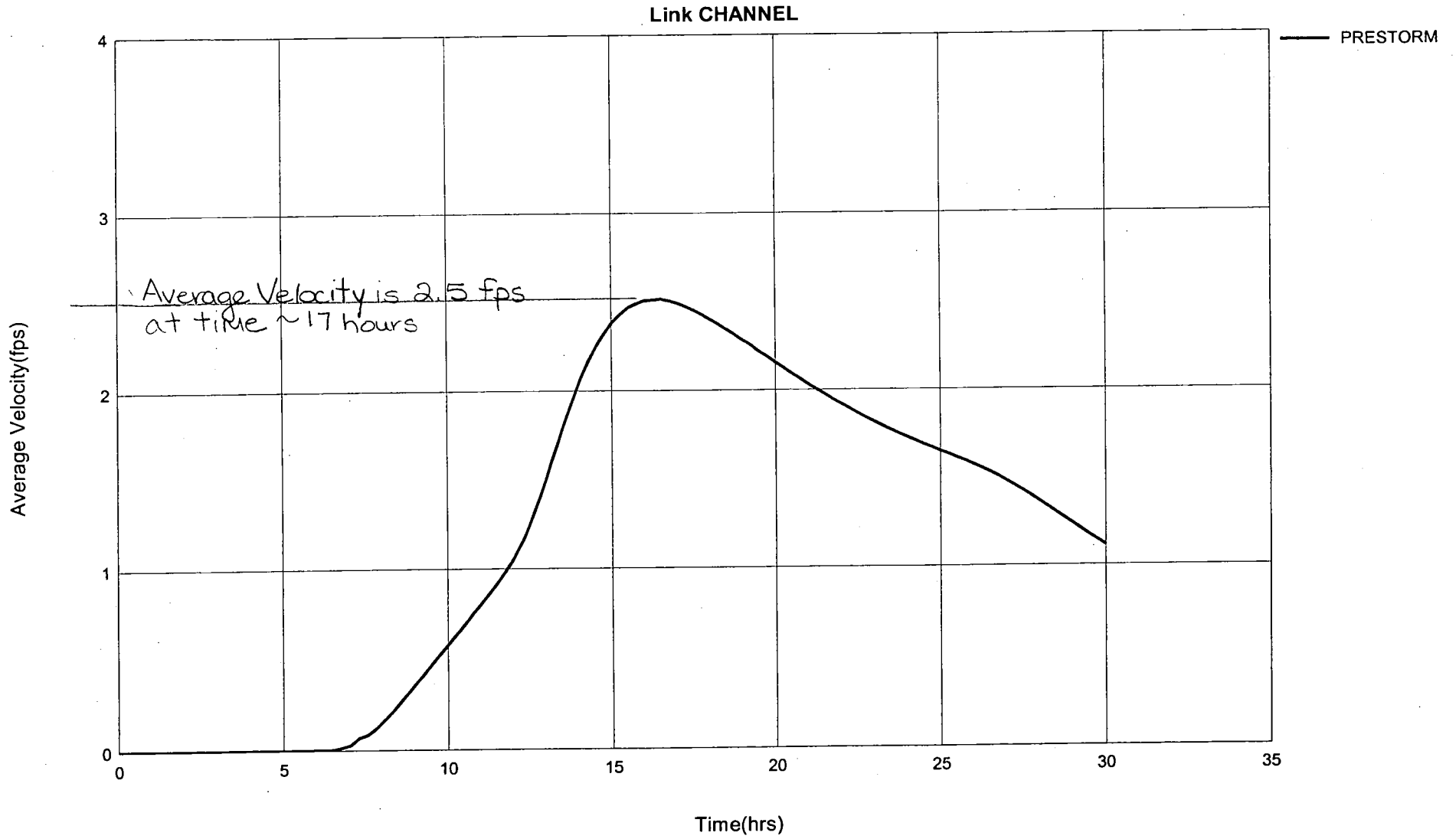
Node Maximum Conditions
 Hardee County Landfill
 Predeveloped Conditions
 25-Year, 24-Hour Storm Event

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Bayhead	BASE	PRESTORM	16.33	79.722	82.000	0.0085	295591	15.00	46.416	16.33	35.557
DISCHARGE POINT	BASE	PRESTORM	0.00	77.000	85.000	0.0000	313	14.77	123.345	0.00	0.000

The node maximum conditions report demonstrates the maximum stage, inflow and outflow values for the system prior to development.

The maximum allowable discharge for the developed site is based on predeveloped conditions; therefore the max discharge is 123.345 cfs.

Velocity vs. Time
Hardee County Landfill
Predeveloped Conditions
25-Year, 24-Hour Storm Event



F:\project\Hardee\09199033.09\ERP\predeveloped\predeveloped.icp

TIME OF CONCENTRATION AND TRAVEL TIME Version 2.10

Project : HARDEE COUNTY LANDFILL User: LEK Date: 04-02-2003

County : HARDEE State: FL Checked: _____ Date: _____

Subtitle: PREDEVELOPMENT

----- Subarea #1 - BASIN1 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)	Time (min)
Sheet	4.1	300	.0001	E					2.893	
Shallow Concent'd		480	.0001	U					0.826	
Shallow Concent'd		1711	.0029	U					0.547	
Open Channel		680						2	0.094	
Time of Concentration = 4.36*										261.6
=====										

----- Subarea #2 - BASIN2 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)	Time (min)
Sheet	4.1	270	.0001	E					2.659	
Shallow Concent'd		860	.0058	U					0.194	
Shallow Concent'd		880	.0001	U					1.515	
Time of Concentration = 4.37*										262.2
=====										

----- Subarea #3 - BASIN3 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)	Time (min)
Sheet	4.1	275	.0001	E					2.698	
Shallow Concent'd		1790	.0028	U					0.582	
Time of Concentration = 3.28*										196.8
=====										

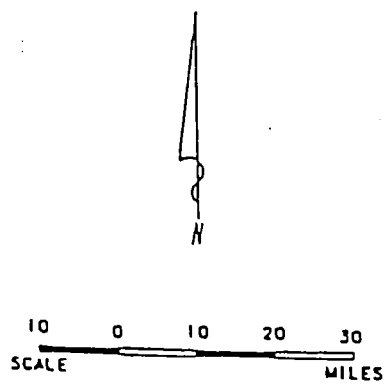
- Sheet Flow Surface Codes ---
- | | | |
|--------------------------|------------------|------------------------------|
| A Smooth Surface | F Grass, Dense | --- Shallow Concentrated --- |
| B Fallow (No Res.) | G Grass, Burmuda | --- Surface Codes --- |
| C Cultivated < 20 % Res. | H Woods, Light | P Paved |
| D Cultivated > 20 % Res. | I Woods, Dense | U Unpaved |
| E Grass-Range, Short | J Range, Natural | |

Time of concentration represents the length of time required for a water droplet to travel through the designated basin to the basin outlet point.

These time of concentration calculations were determined by TR-55 Version 2.10.

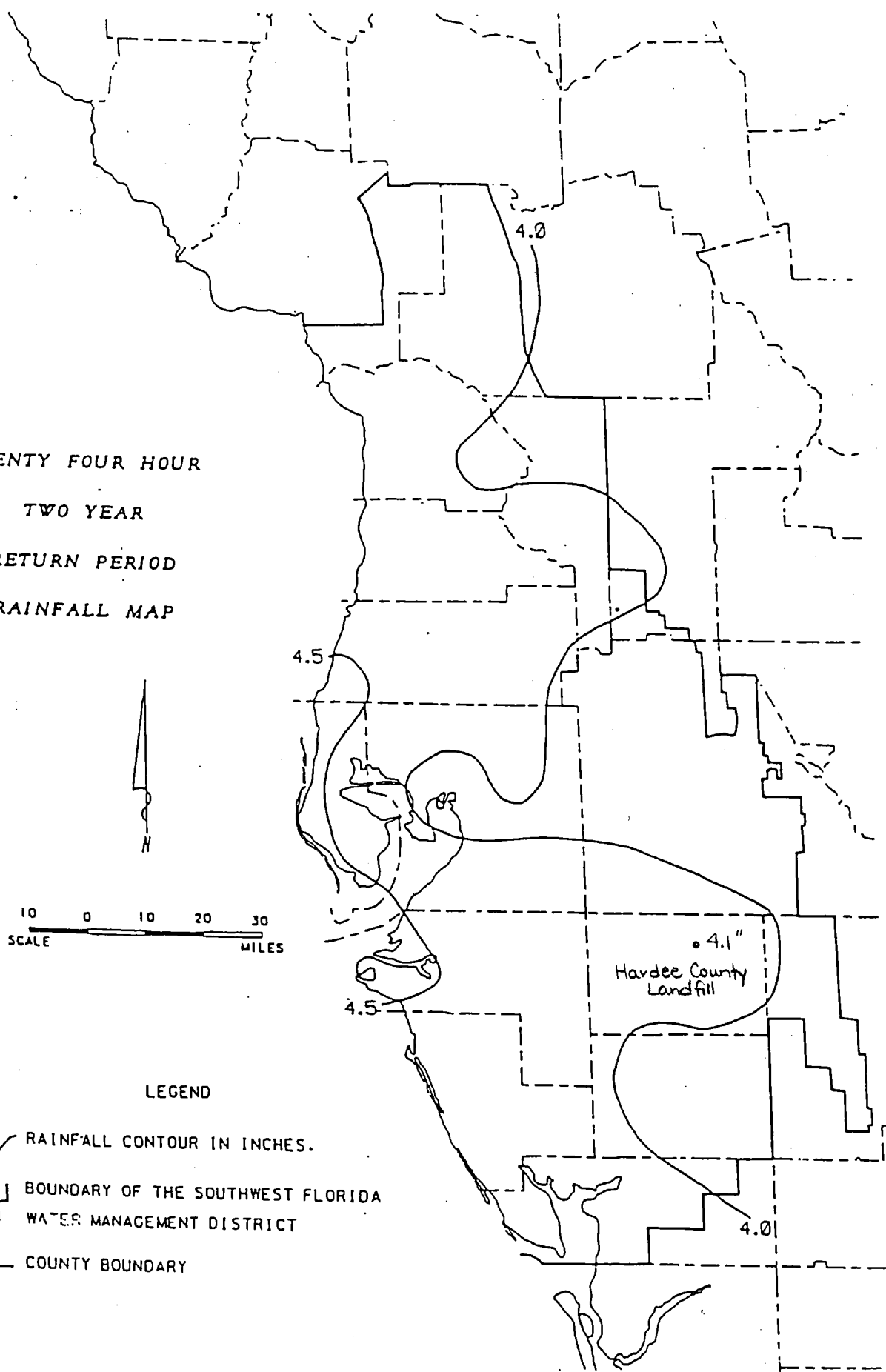
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

TWENTY FOUR HOUR
TWO YEAR
RETURN PERIOD
RAINFALL MAP

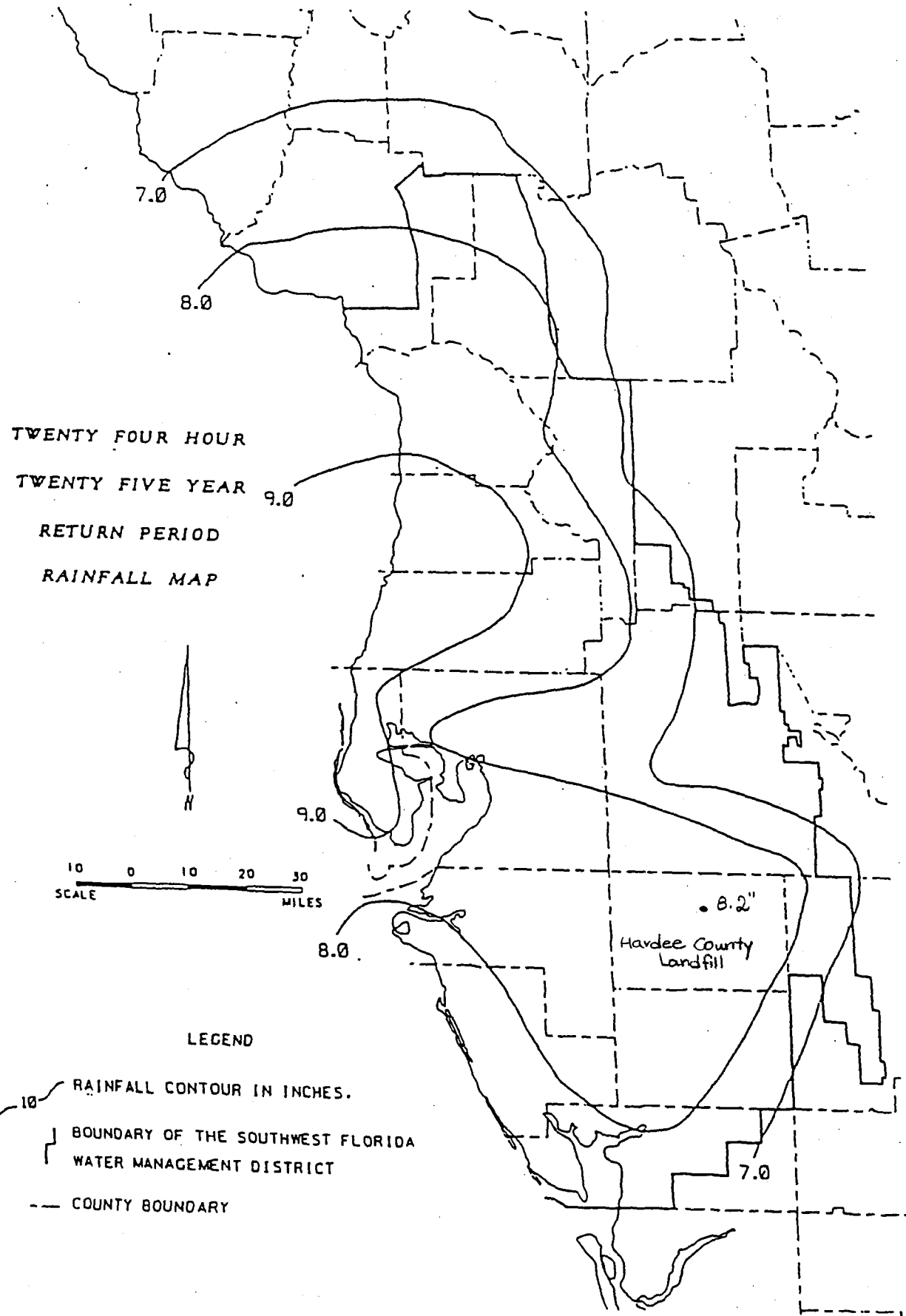


LEGEND

- 10 — RAINFALL CONTOUR IN INCHES.
- BOUNDARY OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
- COUNTY BOUNDARY



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



TWENTY FOUR HOUR
TWENTY FIVE YEAR
RETURN PERIOD
RAINFALL MAP

CLIENT Hardee County	PROJECT Landfill Expansion	JOB NO. 09199033.09
SUBJECT ERP - Predevelopment Conditions	BY LEK	DATE 4/2/03
	CHECKED	DATE

Curve Number Determination

Hydrologic Soil Group Determination:

As shown on Sheets B & C, a hydrologic group C is used for the Pomona, Floridana, Farnton, & Kaliga soils. All the soils are classified as B/D in the Hardee County Soil Survey; therefore a median value of C was chosen.

Group C soils have low infiltration rates when thoroughly wetted & consist chiefly of soils with a layer that impedes downward movement of water & soils with moderately fine to fine texture.

Curve Number:

A curve number of 74 is considered site appropriate. The predevelopment site is good conditioned pasture lands. Sheet D shows the curve number designation.

Table 2-2c.—Runoff curve numbers for other agricultural lands¹

Cover description		Curve numbers for hydrologic soil group—			
		A	B	C	D
Cover type	Hydrologic condition				
Pasture, grassland, or range—continuous forage for grazing. ²	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. ³	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
Woods—grass combination (orchard or tree farm). ⁵	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. ⁶	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

¹Average runoff condition, and $I_p = 0.2S$.

²*Poor*: < 50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: > 75% ground cover and lightly or only occasionally grazed.

³*Poor*: < 50% ground cover.

Fair: 50 to 75% ground cover.

Good: > 75% ground cover.

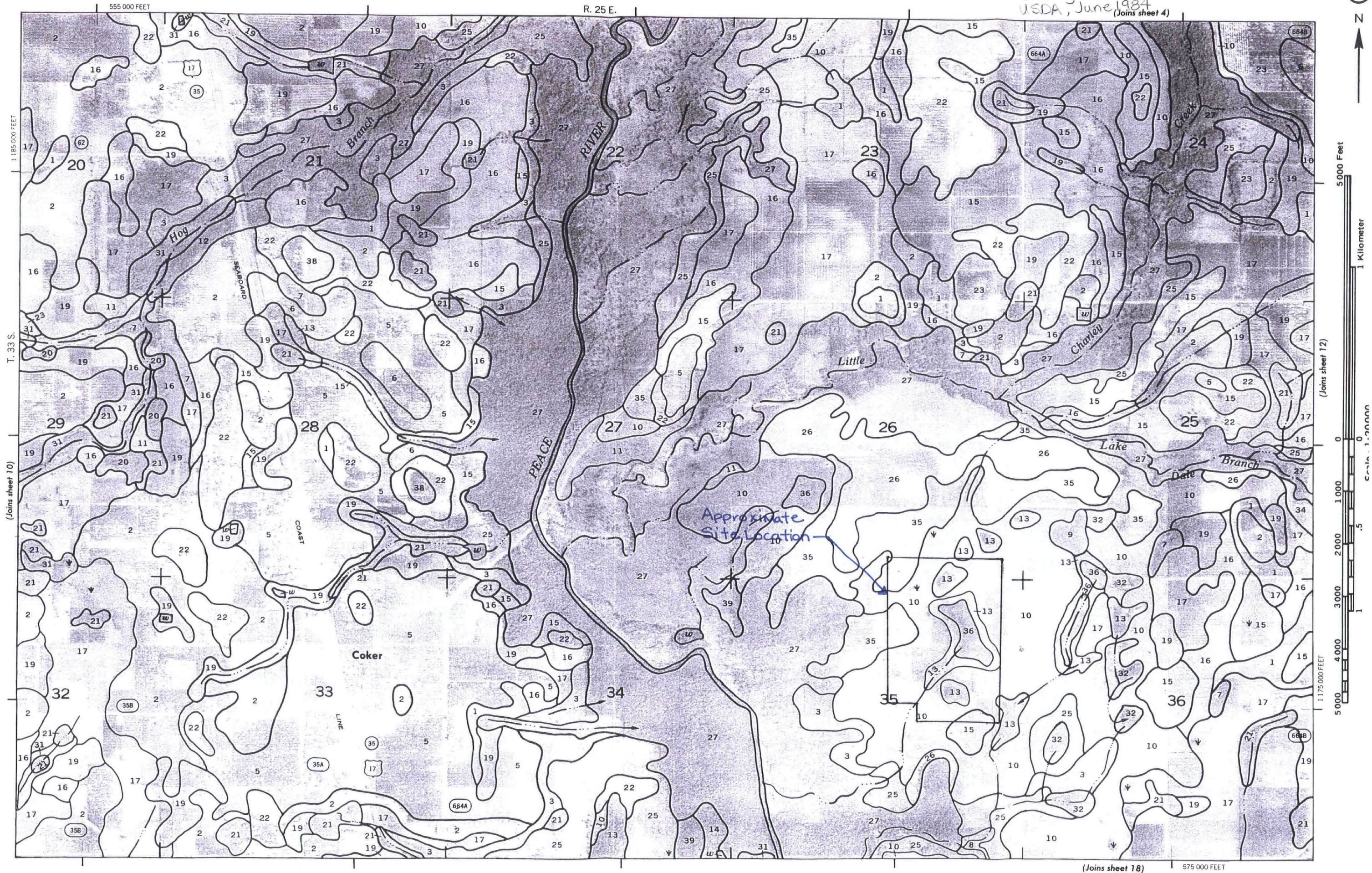
⁴Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and-pasture.

⁶*Poor*: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.



Source: USDA Soil Conservation Service, Soil Survey of Hardee County, Florida, 1984

TABLE 16.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "frequent," "brief," and "apparent" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Ini-tial	Total	Uncoated steel	Concrete
1----- Adamsville	C	None-----	---	---	Ft 2.0-3.5	Apparent	Jun-Nov	---	---	Low-----	Moderate
2----- Zolfo	C	None-----	---	---	2.0-3.5	Apparent	Jun-Nov	---	---	Low-----	Moderate
3----- Ft. Green	D	None-----	---	---	0-1.0	Apparent	Jun-Sep	---	---	High-----	Moderate
4----- Apopka	A	None-----	---	---	>6.0	---	---	---	---	Moderate	High.
5----- Tavares	A	None-----	---	---	3.5-6.0	Apparent	Jun-Dec	---	---	Low-----	High.
6----- Candler	A	None-----	---	---	>6.0	---	---	---	---	Low-----	High.
7----- Basinger	B/D	None-----	---	---	0-1.0	Apparent	Jun-Feb	---	---	High-----	Moderate.
8----- Bradenton	D	Frequent-----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.
9*----- Popash	D	None-----	---	---	+2-1.0	Apparent	Jun-Mar	---	---	Moderate	Moderate.
10----- Pomona	B/D	None-----	---	---	0-1.0	Apparent	Jul-Sep	---	---	High-----	High.
11----- Felda	B/D	None-----	---	---	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate.
12----- Felda	B/D	Frequent-----	Brief-----	Jul-Feb	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate.
13*----- Floridana	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	Moderate	Low.
15----- Immokalee	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
16----- Myakka	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
17----- Smyrna	B/D	None-----	---	---	0-1.0	Apparent	Jul-Oct	---	---	High-----	High.
18----- Cassia	C	None-----	---	---	1.5-3.5	Apparent	Jul-Jan	---	---	Moderate	High.
19----- Ona	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
20*----- Samsula	B/D	None-----	---	---	+2-1.0	Apparent	Jan-Dec	16-20	30-36	High-----	High.
21*----- Placid	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Mar	---	---	High-----	High.
22----- Pomello	C	None-----	---	---	2.0-3.5	Apparent	Jul-Nov	---	---	Low-----	High.
23----- Sparr	C	None-----	---	---	1.5-3.5	Apparent	Jul-Oct	---	---	Moderate	High.

Soil Survey of Hardee
County Florida
USDA, June 1984

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Subsidence		Risk of co	
		Frequency	Duration	Months	Depth	Kind	Months	Ini-tial	Total	Uncoated steel	
					Ft			In	In		
24----- Jonathan	B	None-----	---	---	3.0-5.0	Apparent	Jun-Oct	---	---	Low-----	
25----- Wabasso	B/D	None-----	---	---	0-1.0	Apparent	Jun-Oct	---	---	Moderate	
26----- Electra	C	None-----	---	---	2.0-3.5	Apparent	Jul-Oct	---	---	Low-----	
27: Bradenton-----	D	Frequent----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.
Felda-----	B/D	Frequent----	Brief-----	Jul-Feb	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate.
Chobee-----	B/D	Frequent----	Brief to very long.	Jun-Feb	0-1.0	Apparent	Jun-Feb	---	---	Moderate	Low.
28----- Holopaw	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	Moderate.
29. Pits											
30*----- Hontoon	B/D	None-----	---	---	+2-1.0	Apparent	Jan-Dec	16-24	>52	High-----	High.
31----- Pompano	D	Frequent----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Nov	---	---	High-----	Moderate.
32*----- Felda	D	None-----	---	---	+2-1.0	Apparent	Jun-Dec	---	---	High-----	High.
33*----- Manatee	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	High-----	Low.
34----- Wauchula	B/D	None-----	---	---	0-1.0	Apparent	Jun-Feb	---	---	High-----	High.
35----- Farmton	B/D	None-----	---	---	0-1.0	Apparent	Jun-Oct	---	---	High-----	High.
36*----- Kaliga	B/D	None-----	---	---	+2-0	Apparent	Jun-Apr	16-20	24-45	High-----	High.
37*----- Basinger	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	High-----	Moderate.
38----- St. Lucie	A	None-----	---	---	>6.0	---	---	---	---	Low-----	Moderate.
39----- Bradenton	B/D	None-----	---	---	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.

* In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

APPENDIX 19.A
Manning's Roughness Coefficient,^a n
(design use)

channel material	n^b
plastic (PVC and ABS)	0.009
clean, uncoated cast iron	0.013-0.015
clean, coated cast iron	0.012-0.014
dirty, tuberculated cast iron	0.015-0.035
riveted steel	0.015-0.017
lock-bar and welded steel pipe	0.012-0.013
galvanized iron	0.015-0.017
brass and glass	0.009-0.013
wood stave	
small diameter	0.011-0.012
large diameter	0.012-0.013
concrete	
average value used	0.013
typical commercial, ball and spigot	
rubber gasketed end connections	
- full (pressurized and wet)	0.010
- partially full	0.0085
with rough joints	0.016-0.017
dry mix, rough forms	0.015-0.016
wet mix, steel forms	0.012-0.014
very smooth, finished	0.011-0.012
vitriified sewer	0.013-0.015
common-clay drainage tile	0.012-0.014
asbestos	0.011
planed timber (flume)	0.012 (0.010-0.014)
canvas	0.012
unplaned timber (flume)	0.013 (0.011-0.015)
brick	0.016
rubble masonry	0.017
smooth earth	0.018
firm gravel	0.023
corrugated metal pipe (CMP)	0.024 (see App. 17.F)
natural channels, good condition	0.025
rip rap	0.035
natural channels with stones and weeds	0.035
very poor natural channels	0.060

^aCompiled from various sources.

^bValues outside these ranges have been observed, but these values are typical.

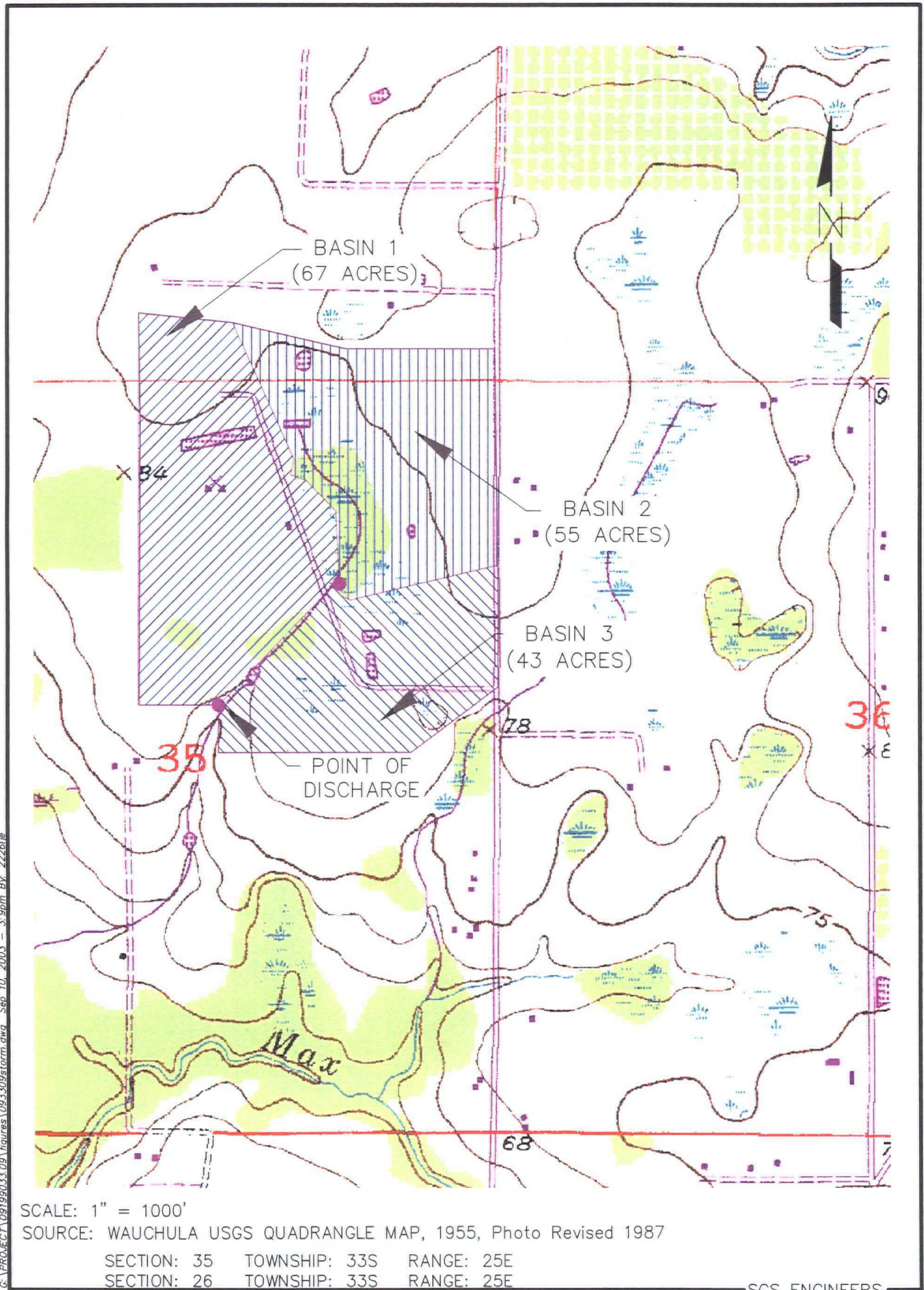
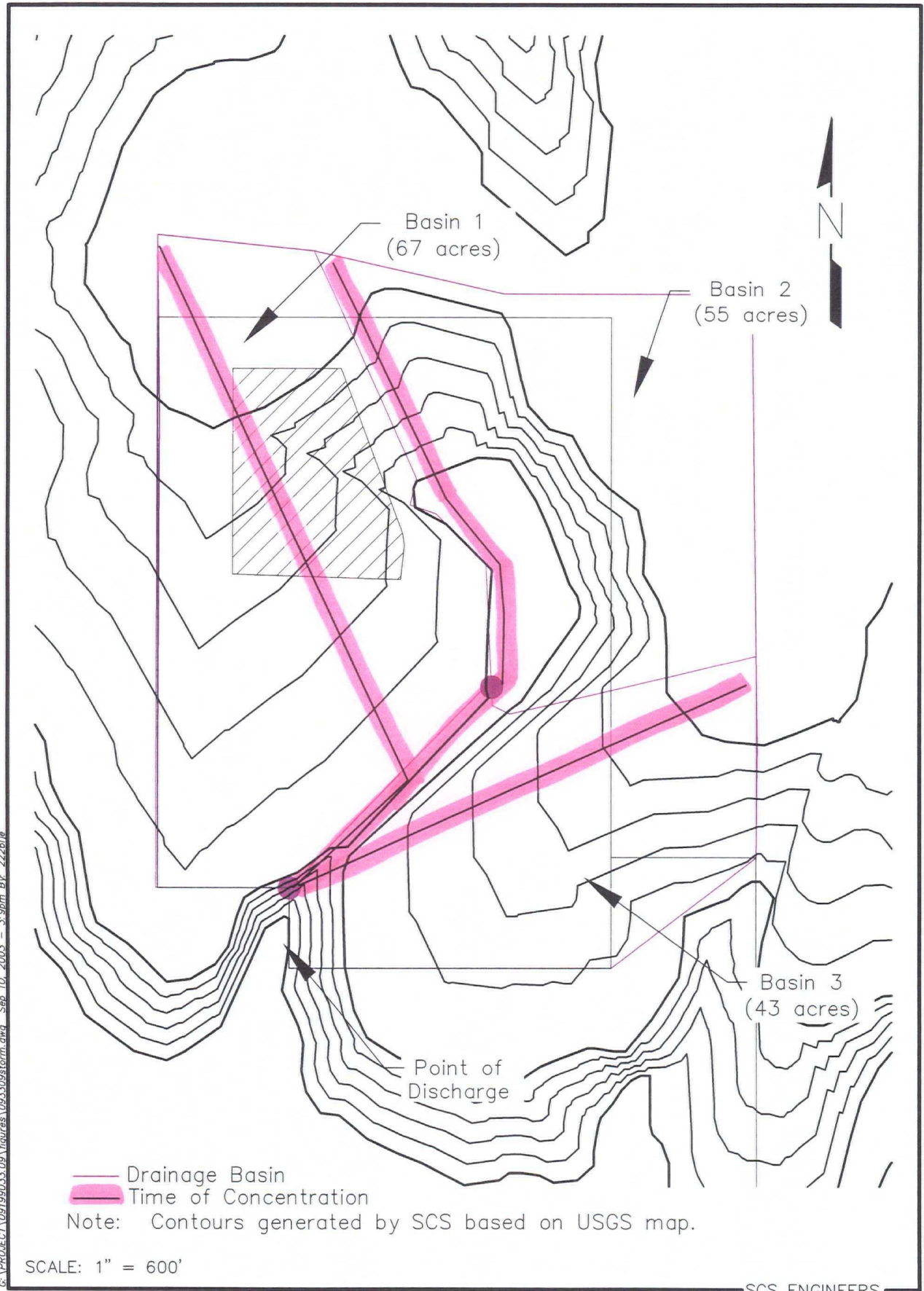


Figure 1. Predevelopment Conditions, Hardee County Landfill
Hardee County, Florida



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Figure 2. Predevelopment Basins, Hardee County Landfill
Hardee County, Florida

Stormwater Modeling Table of Contents

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Input Report
Hardee County Landfill
25 year-24 hour storm event

=====

Basins =====

=====

Name: BAYHEAD	Node: BAYHEAD	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 42.60
Area(ac): 51.000	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

"Bayhead" area is comprised of stormwater basin that receive on and off site runoff. The off site area was obtained from USGS. See the basin delineations on Figure 1 and the basin calcs on Sheet 26.

Name: BORROW PIT	Node: Borrow Pit	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 9.130	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

• See Sheet 32 for curve number derivation

• See Sheet 39 for time of concentration data

Name: C&D	Node: C&D Chnl	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 14.40
Area(ac): 3.080	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Represents the C&D area located on the south west corner of the site.

Name: C&D South Pond	Node: C&D South Pond	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.507	Time Shift(hrs): 0.00
Curve Number: 98.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Represents the pond adjacent to the "C&D" basin.

Name: East Channel	Node: East Channel	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 1.360	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Located on the east side of the landfill.

Name: GRASSED AREA	Node: OffSiteChannelN	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 61.20
Area(ac): 16.270	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Represents the grassed area south of the landfill.

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Input Report
Hardee County Landfill
25 year-24 hour storm event

```

-----
Name: GUN RANGE           Node: Gun Range Pond   Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 31.80
Area(ac): 6.460                Time Shift(hrs): 0.00
Curve Number: 74.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

Represents the basin in the far north east corner of the site.

```

-----
Name: Gun Range Pond     Node: Gun Range Pond   Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 6.00
Area(ac): 0.790                Time Shift(hrs): 0.00
Curve Number: 98.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

Represents Stormwater Pond east of the Primary Stormwater Treatment Pond. Located West of the Gun Range. This pond treats the majority of stormwater runoff from off site (noted as basin "N. Offsite")

```

-----
Name: LEACHATE TANKS     Node: OffSiteChannelN  Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 13.80
Area(ac): 2.310                Time Shift(hrs): 0.00
Curve Number: 98.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

Represents the leachate holding tanks adjacent to the landfill.

```

-----
Name: LF-1               Node: NW-Weir 135      Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 19.20
Area(ac): 0.970                Time Shift(hrs): 0.00
Curve Number: 74.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

```

-----
Name: LF-10              Node: West Channel     Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 6.00
Area(ac): 1.440                Time Shift(hrs): 0.00
Curve Number: 74.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

```

-----
Name: LF-11              Node: South Channel    Status: Onsite
Group: BASE              Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484           Peaking Factor: 484.0
Rainfall File: Flmod            Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200      Time of Conc(min): 6.00
Area(ac): 1.020                Time Shift(hrs): 0.00
Curve Number: 74.00            Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

```

-----
Name: LF-12              Node: South East LF    Status: Onsite

```

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Input Report
Hardee County Landfill
25 year-24 hour storm event

Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.430	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-13 Node: Road Ditch Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.540	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Represents the haul road that runs up the east sideslope of the landfill.

Name: LF-14 Node: NE WEIR 110 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.240	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-2 Node: NE-Weir 135 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 19.20
Area(ac): 1.100	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-3 Node: S. East 110 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 1.190	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-4 Node: SW 110 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 25.20
Area(ac): 1.560	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-5 Node: SW 110 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484 Peaking Factor: 484.0

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Hardee County Landfill
25 year-24 hour storm event

Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 19.80
Area(ac): 2.250	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-6	Node: NW WEIR 110	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.290	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-7	Node: N.EastBench110	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.530	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-8	Node: East Channel	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.780	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: LF-9	Node: North Channel	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 6.00
Area(ac): 0.540	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: MARSHLAND	Node: Marshland	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 15.00
Area(ac): 1.770	Time Shift(hrs): 0.00
Curve Number: 74.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Located North of Primary Stormwater Treatment Pond, East of Landfill.

Name: N. Offsite	Node: N Offsite Pond	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph	

Unit Hydrograph: Uh484	Peaking Factor: 484.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200	Time of Conc(min): 51.60
Area(ac): 13.830	Time Shift(hrs): 0.00

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Input Report
Hardee County Landfill
25 year-24 hour storm event

Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Represents the stormwater runoff from off site onto the northern portion of the property. The off site area was obtained from USGS.

Name: North Channel Node: North Channel Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 0.610 Time Shift(hrs): 0.00
Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Located on the north side of the landfill.

Name: Primary Pond Node: Primary Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 0.690 Time Shift(hrs): 0.00
Curve Number: 98.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Represents Primary Stormwater Treatment Pond, which diverts stormwater off the landfill towards the Bayhead after treatment.

Name: SCALEHOUSE Node: Scalehouse Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 1.650 Time Shift(hrs): 0.00
Curve Number: 98.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Scalehouse Pond Node: Scalehouse Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 0.400 Time Shift(hrs): 0.00
Curve Number: 98.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Represents Stormwater Pond adjacent to the Office/Scalehouse.

Name: SE Channel Node: South East LF Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 0.280 Time Shift(hrs): 0.00
Curve Number: 98.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Located on the south east corner of the landfill at the toe of slop.

Name: SOUTH POND Node: SOUTH POND Status: Onsite
Group: BASE Type: SCS Unit Hydrograph
Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200 Time of Conc(min): 6.00
Area(ac): 4.550 Time Shift(hrs): 0.00
Curve Number: 98.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Represents the pond at the south end of the property.

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Input Report
Hardee County Landfill
25 year-24 hour storm event

```

-----
Name: West Channel      Node: West Channel      Status: Onsite
Group: BASE            Type: SCS Unit Hydrograph

Unit Hydrograph: Uh484      Peaking Factor: 484.0
Rainfall File: Flmod        Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.200  Time of Conc(min): 6.00
Area(ac): 1.030           Time Shift(hrs): 0.00
Curve Number: 74.00       Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

```

Located on the west side of the landfill.

Nodes

```

Name: Bayhead          Base Flow(cfs): 0.000   Init Stage(ft): 78.000
Group: BASE            Type: Stage/Area        Warn Stage(ft): 83.000

```

Represents the wooded bayhead located on the eastern side of the site.

Stage(ft)	Area(ac)
78.000	0.1300
79.000	3.0000
80.000	7.7000
81.000	12.6000
82.000	15.4000

```

Name: Borrow Pit      Base Flow(cfs): 0.000   Init Stage(ft): 75.000
Group: BASE            Type: Stage/Area        Warn Stage(ft): 83.000

```

Represents the borrow pit located west of the scalehouse.

Stage(ft)	Area(ac)
75.000	5.3000
80.000	6.9000
83.000	6.9000

```

Name: BOUNDARY        Base Flow(cfs): 0.000   Init Stage(ft): 73.410
Group: BASE            Type: Time/Stage        Warn Stage(ft): 83.000

```

Boundary is located at the offsite discharge point.

Time(hrs)	Stage(ft)
0.00	73.410
9999.00	73.410

```

Name: C&D Chnl        Base Flow(cfs): 0.000   Init Stage(ft): 82.500
Group: BASE            Type: Stage/Area        Warn Stage(ft): 83.500

```

Represents the C&D Site located on the south-western corner of the site.

Stage(ft)	Area(ac)
82.500	0.0000
83.500	0.0000

```

Name: C&D Pipe         Base Flow(cfs): 0.000   Init Stage(ft): 80.890
Group: BASE            Type: Stage/Area        Warn Stage(ft): 83.000

```

Represents the C&D pipe located on the south-western corner of the site.

Stage(ft)	Area(ac)
80.890	0.0000
83.000	0.0000

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Input Report
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Name: C&D South Pond Base Flow(cfs): 0.000 Init Stage(ft): 73.000
Group: BASE Warn Stage(ft): 83.000
Type: Stage/Area

The pond adjacent to the C&D area, across the road.

Stage(ft)	Area(ac)
73.000	0.2420
74.000	0.2770
75.000	0.3080
76.000	0.3460
77.000	0.3760
78.000	0.4180
79.000	0.4620
80.000	0.5070
81.000	0.5070

Name: East Channel Base Flow(cfs): 0.000 Init Stage(ft): 82.000
Group: BASE Warn Stage(ft): 85.500
Type: Stage/Area

Channel located on the eastern perimeter of the landfill.

Stage(ft)	Area(ac)
82.000	0.0000
85.500	0.0000

Name: Gun Range Pond Base Flow(cfs): 0.000 Init Stage(ft): 80.570
Group: BASE Warn Stage(ft): 85.000
Type: Stage/Area

Located east of the landfill and primary stormwater pond. Treats flow from the gun range and from offsite.

Stage(ft)	Area(ac)
80.570	0.6075
81.000	0.6448
82.000	0.7002
83.000	0.7868

Name: Marshland Base Flow(cfs): 0.000 Init Stage(ft): 83.000
Group: BASE Warn Stage(ft): 86.000
Type: Stage/Area

Represents a point in the channel that carries stormwater to the primary stormwater pond, located north east of the landfill. Represents the Marshland basin.

Stage(ft)	Area(ac)
83.000	0.0000
86.000	0.0000

Name: N Offsite Pond Base Flow(cfs): 0.000 Init Stage(ft): 82.280
Group: BASE Warn Stage(ft): 85.000
Type: Stage/Area

Pond located offsite, North of Landfill and wetlands area. Treats offsite flow; when this pond stages up it overflows onto the site.

Stage(ft)	Area(ac)
82.280	0.4460
83.000	0.4940
85.000	0.4940

Name: N.EastBench110 Base Flow(cfs): 0.000 Init Stage(ft): 111.000
Group: BASE Warn Stage(ft): 113.000
Type: Stage/Area

High point located on the northern east side of the landfill, adjacent to the landfill haul road, in the bench located at elevation 110.

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Input Report
Hardee County Landfill
25 year-24 hour storm event

Stage(ft)	Area(ac)
111.000	0.0000
113.000	0.0000

Name: NE WEIR 110 Base Flow(cfs): 0.000 Init Stage(ft): 110.000
 Group: BASE Warn Stage(ft): 112.000
 Type: Stage/Area

Weir located in the drop inlet on the north east corner of the landfill at elev 110.

Stage(ft)	Area(ac)
110.000	0.0000
112.000	0.0000

Name: NE-Drop110 Base Flow(cfs): 0.000 Init Stage(ft): 107.000
 Group: BASE Warn Stage(ft): 112.000
 Type: Stage/Area

Represents the drop inlet located on the north-east corner of the landfill at elevation 110.

Stage(ft)	Area(ac)
107.000	0.0000
112.000	0.0000

Name: NE-Drop135 Base Flow(cfs): 0.000 Init Stage(ft): 132.000
 Group: BASE Warn Stage(ft): 137.000
 Type: Stage/Area

Represents the drop inlet located on the north-east corner of the landfill at elevation 135.

Stage(ft)	Area(ac)
132.000	0.0000
137.000	0.0000

Name: NE-Weir 135 Base Flow(cfs): 0.000 Init Stage(ft): 135.000
 Group: BASE Warn Stage(ft): 137.000
 Type: Stage/Area

Weir located in the drop inlet on the north east corner of the landfill at elev 135.

Stage(ft)	Area(ac)
135.000	0.0000
137.000	0.0000

Name: North Channel Base Flow(cfs): 0.000 Init Stage(ft): 84.000
 Group: BASE Warn Stage(ft): 86.000
 Type: Stage/Area

Represents the channel that carries stormwater to the primary stormwater pond, located north of the landfill.

Stage(ft)	Area(ac)
84.000	0.0000
86.000	0.0000

Name: NW WEIR 110 Base Flow(cfs): 0.000 Init Stage(ft): 110.000
 Group: BASE Warn Stage(ft): 112.000
 Type: Stage/Area

Weir located in the drop inlet on the north west corner of the landfill at elev 110.

Stage(ft)	Area(ac)
110.000	0.0000
112.000	0.0000

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Hardee County Landfill
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```
Name: NW-Drop110      Base Flow(cfs): 0.000      Init Stage(ft): 107.000
Group: BASE           Warn Stage(ft): 112.000
Type: Stage/Area
```

Represents the drop inlet located on the north-west corner of the landfill at elevation 110.

Stage(ft)	Area(ac)
107.000	0.0000
112.000	0.0000

```
Name: NW-Drop135      Base Flow(cfs): 0.000      Init Stage(ft): 132.000
Group: BASE           Warn Stage(ft): 137.000
Type: Stage/Area
```

Represents the drop inlet located on the north-west corner of the landfill at elevation 135.

Stage(ft)	Area(ac)
132.000	0.0000
137.000	0.0000

```
Name: NW-Weir 135     Base Flow(cfs): 0.000      Init Stage(ft): 135.000
Group: BASE           Warn Stage(ft): 137.000
Type: Stage/Area
```

Weir located in the drop inlet on the northwest corner of the landfill at elev 135.

Stage(ft)	Area(ac)
135.000	0.0000
137.000	0.0000

```
Name: OffSiteChannelN Base Flow(cfs): 0.000      Init Stage(ft): 78.480
Group: BASE           Warn Stage(ft): 83.000
Type: Stage/Area
```

Represents the north invert of the channel located west of the borrow pit; this channel carries stormwater off-site.

Stage(ft)	Area(ac)
78.480	0.0000
83.000	0.0000

```
Name: OffsiteChannelS Base Flow(cfs): 0.000      Init Stage(ft): 76.830
Group: BASE           Warn Stage(ft): 83.000
Type: Stage/Area
```

Represents the south invert of the channel located west of the borrow pit; this channel carries stormwater off-site.

Stage(ft)	Area(ac)
76.830	0.0000
83.000	0.0000

```
Name: Primary Pond    Base Flow(cfs): 0.000      Init Stage(ft): 81.900
Group: BASE           Warn Stage(ft): 86.000
Type: Stage/Area
```

Represents the primary stormwater treatment pond prior to stormwater flowing into the bayhead.

Stage(ft)	Area(ac)
81.900	0.5700
82.000	0.6300
83.000	0.6900
84.000	0.6910
86.000	0.6910

Input Report
Hardee County Landfill
25 year-24 hour storm event

Name: Road Ditch Base Flow(cfs): 0.000 Init Stage(ft): 134.100
Group: BASE Warn Stage(ft): 135.000
Type: Stage/Area

Represents the ditch that runs along the west side of the landfill haul road.

Stage(ft)	Area(ac)
134.100	0.0000
135.000	0.0000

Name: S. East 110 Base Flow(cfs): 0.000 Init Stage(ft): 111.000
Group: BASE Warn Stage(ft): 113.000
Type: Stage/Area

High point located on the southern east side of the landfill in the bench located at elevation 110.

Stage(ft)	Area(ac)
111.000	0.0000
113.000	0.0000

Name: Scalehouse Pond Base Flow(cfs): 0.000 Init Stage(ft): 78.700
Group: BASE Warn Stage(ft): 83.000
Type: Stage/Area

Represents the stormwater pond located west of the scalehouse. Treats stormwater from the scalehouse vicinity.

Stage(ft)	Area(ac)
78.700	0.2100
79.000	0.2300
80.000	0.2800
81.000	0.3300
82.000	0.4400

Name: SE WEIR 110 Base Flow(cfs): 0.000 Init Stage(ft): 110.000
Group: BASE Warn Stage(ft): 112.000
Type: Stage/Area

Weir located in the drop inlet on the south east corner of the landfill at elevation 135.

Stage(ft)	Area(ac)
110.000	0.0000
112.000	0.0000

Name: SE-Drop110 Base Flow(cfs): 0.000 Init Stage(ft): 107.000
Group: BASE Warn Stage(ft): 112.000
Type: Stage/Area

Represents the drop inlet located on the south-east corner of the landfill at elevation 110.

Stage(ft)	Area(ac)
107.000	0.0000
112.000	0.0000

Name: South Channel Base Flow(cfs): 0.000 Init Stage(ft): 85.000
Group: BASE Warn Stage(ft): 86.000
Type: Stage/Area

Channel located on the southern perimeter of the landfill.

Stage(ft)	Area(ac)
85.000	0.0000
86.000	0.0000

Name: South East LF Base Flow(cfs): 0.000 Init Stage(ft): 82.400
Group: BASE Warn Stage(ft): 85.500
Type: Stage/Area

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Represents the south east corner of the landfill. One 19" x 30" ERCP connects flow from the landfill to the primary channel, which carries stormwater to the primary treatment pond.

Stage(ft)	Area(ac)
82.400	0.0028
83.400	0.0674
84.000	0.0964

```

-----
Name: South Pond             Base Flow(cfs): 0.000             Init Stage(ft): 78.000
Group: BASE                  Warn Stage(ft): 83.000
Type: Stage/Area

```

Represents the pond located south of the site, adjacent to the borrow pit.

Stage(ft)	Area(ac)
78.000	2.8400
79.000	3.0000
81.000	3.1100

```

-----
Name: SW 110                 Base Flow(cfs): 0.000             Init Stage(ft): 112.500
Group: BASE                  Warn Stage(ft): 114.500
Type: Stage/Area

```

High point in the south west corner of the landfill at the bench located at elevation 110.

Stage(ft)	Area(ac)
112.500	0.0000
114.500	0.0000

```

-----
Name: West Channel          Base Flow(cfs): 0.000             Init Stage(ft): 85.000
Group: BASE                  Warn Stage(ft): 86.000
Type: Stage/Area

```

Represents the channel that carries stormwater to the primary stormwater pond, located north of the landfill.

Stage(ft)	Area(ac)
85.000	0.0000
86.000	0.0000

==== Cross Sections =====

```

Name: Primary Weir                Group: BASE
Encroachment: No

```

Represents the V-notch weir in the drop structure within the primary pond.

Station(ft)	Elevation(ft)	Manning's N
0.000	85.020	0.015000
1.250	82.290	0.015000
2.500	85.020	0.015000

==== Pipes =====

```

Name: 18" C&D Pipe           From Node: C&D Pipe             Length(ft): 26.50
Group: BASE                  To Node: C&D South Pond        Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                Exit Loss Coef: 0.00
                                Bend Loss Coef: 0.00
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dn
                                Stabilizer Option: None

UPSTREAM           DOWNSTREAM
Geometry: Circular Circular
Span(in): 18.00    18.00
Rise(in): 18.00    18.00
Invert(ft): 80.890 80.740
Manning's N: 0.015000 0.015000
Top Clip(in): 0.000 0.000
Bot Clip(in): 0.000 0.000

```

See Sheet for 49
Manning's N values.

Input Report
Hardee County Landfill
25 year-24 hour storm event

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

18" steel pipe that runs under the road and is located adjacent to the closed C&D site.

Name: 18" South Pond	From Node: SOUTH POND	Length(ft): 24.00
Group: BASE	To Node: Borrow Pit	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.50
Invert(ft): 79.410	80.980	Exit Loss Coef: 1.00
Manning's N: 0.015000	0.015000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

18" steel pipe that connects the South Pond to the Borrow Pit.

Name: 19x30 Haul Rd	From Node: BAYHEAD	Length(ft): 45.90
Group: BASE	To Node: OffSiteChannelN	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Horz Ellipse	Horz Ellipse	Solution Algorithm: Automatic
Span(in): 30.00	30.00	Flow: Both
Rise(in): 19.00	19.00	Entrance Loss Coef: 0.50
Invert(ft): 78.690	78.530	Exit Loss Coef: 0.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

One 19x30 ERCP that runs under the main haul road adjacent to the Bayhead.

Name: 19x30 Haul Rd 2	From Node: BAYHEAD	Length(ft): 45.90
Group: BASE	To Node: OffSiteChannelN	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Horz Ellipse	Horz Ellipse	Solution Algorithm: Automatic
Span(in): 30.00	30.00	Flow: Both
Rise(in): 19.00	19.00	Entrance Loss Coef: 0.50
Invert(ft): 78.530	78.480	Exit Loss Coef: 0.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

One 19x30 ERCP that runs under the main haul road adjacent to the Bayhead.

Name: 19X30 LF	From Node: South East LF	Length(ft): 45.00
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Input Report
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Group: BASE	To Node: East Channel	Count: 1
		Friction Equation: Average Conveyance
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Horz Ellipse	Horz Ellipse	Flow: Both
Span(in): 30.00	30.00	Entrance Loss Coef: 0.50
Rise(in): 19.00	19.00	Exit Loss Coef: 0.00
Invert(ft): 82.400	82.000	Bend Loss Coef: 0.00
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

One 19X30 ERCP THAT LIES SOUTH EAST OF THE LANDFILL, ADJACENT TO THE MAINTENANCE SHED.

Name: 30" Boundary	From Node: OffsiteChannels	Length(ft): 29.00
Group: BASE	To Node: BOUNDARY	Count: 1
		Friction Equation: Average Conveyance
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 30.00	30.00	Entrance Loss Coef: 0.50
Rise(in): 30.00	30.00	Exit Loss Coef: 0.00
Invert(ft): 76.830	73.410	Bend Loss Coef: 0.00
Manning's N: 0.024000	0.024000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

CMP that carries flow offsite.

Name: NE Drop 110	From Node: NE-Drop110	Length(ft): 92.00
Group: BASE	To Node: Marshland	Count: 1
		Friction Equation: Average Conveyance
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 24.00	24.00	Entrance Loss Coef: 0.50
Rise(in): 24.00	24.00	Exit Loss Coef: 1.00
Invert(ft): 107.000	84.000	Bend Loss Coef: 1.20
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

24" plastic ADS N-12 downchute located on the north east corner of the landfill at elevation 110.

Name: NE Drop 135	From Node: NE-Drop135	Length(ft): 110.00
Group: BASE	To Node: NE-Drop110	Count: 1
		Friction Equation: Average Conveyance
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 24.00	24.00	Entrance Loss Coef: 0.50
Rise(in): 24.00	24.00	Exit Loss Coef: 1.00
Invert(ft): 132.000	107.000	Bend Loss Coef: 1.20
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

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Hardee County Landfill
25 year-24 hour storm event

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

24" plastic ADS N-12 downchute located on the north east corner of the landfill at elevation 135.

Name: NW Drop 110	From Node: NW-Drop110	Length(ft): 90.00
Group: BASE	To Node: North Channel	Count: 1
	Friction Equation: Average Conveyance	
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 24.00	24.00	Entrance Loss Coef: 0.50
Rise(in): 24.00	24.00	Exit Loss Coef: 1.00
Invert(ft): 107.000	84.000	Bend Loss Coef: 1.20
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

24" plastic ADS N-12 downchute located on the north west corner of the landfill at elevation 110.

Name: NW Drop 135	From Node: NW-Drop135	Length(ft): 132.00
Group: BASE	To Node: NW-Drop110	Count: 1
	Friction Equation: Average Conveyance	
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 24.00	24.00	Entrance Loss Coef: 0.50
Rise(in): 24.00	24.00	Exit Loss Coef: 1.00
Invert(ft): 132.000	107.000	Bend Loss Coef: 1.20
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

24" plastic ADS N-12 downchute located on the north west corner of the landfill at elevation 135.

Name: SE Drop 110	From Node: SE-Drop110	Length(ft): 120.00
Group: BASE	To Node: South East	Count: 1
	Friction Equation: Average Conveyance	
UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 24.00	24.00	Entrance Loss Coef: 0.50
Rise(in): 24.00	24.00	Exit Loss Coef: 1.00
Invert(ft): 107.000	83.400	Bend Loss Coef: 1.20
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

24" plastic ADS N-12 downchute located on the south east corner of the landfill at elevation 110.

==== Channels =====

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Name: C&D Channel	From Node: C&D Chnl	Length(ft): 1008.00
Group: BASE	To Node: C&D Pipe	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 82.500	80.890	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 4.000	4.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

C&D Channel set at 0.16% drop over the 1008 feet.

Name: East Channel	From Node: East Channel	Length(ft): 750.00
Group: BASE	To Node: Primary Pond	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 82.000	81.900	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 7.000	5.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 5.00	5.00	

Channel located east of the main haul road. Diverts stormwater to the Primary Stormwater Treatment Pond.

Name: N. Marsh Chnl	From Node: Marshland	Length(ft): 435.00
Group: BASE	To Node: Primary Pond	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 83.000	81.900	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 8.000	7.700	
LtSdSlp(h/v): 5.40	6.40	
RtSdSlp(h/v): 4.90	9.00	

Channel located north east of the landfill. Diverts stormwater to the Primary Stormwater Treatment Pond.

Name: NE Chnl 110	From Node: N.EastBench110	Length(ft): 400.00
Group: BASE	To Node: NE WEIR 110	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 111.000	110.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000

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Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 6.000	6.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

Channel located on the north east side of the landfill at elevation 110.

Name: North Channel	From Node: North Channel	Length(ft): 425.00
Group: BASE	To Node: Marshland	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 84.000	83.000	Flow: Both
TC1pInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.500
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 8.000	8.000	
LtSdSlp(h/v): 5.40	6.40	
RtSdSlp(h/v): 4.90	9.00	

Channel located north of the landfill.

Name: Off Site Chnl	From Node: OffSiteChannelN	Length(ft): 864.00
Group: BASE	To Node: OffsiteChannels	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 78.480	76.830	Flow: Both
TC1pInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 5.000	5.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

Channel located north of the borrow pit that conveys stormwater from the bayhead to the off-site discharge point.

Name: Road Swale	From Node: Road Ditch	Length(ft): 700.00
Group: BASE	To Node: South East LF	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 134.100	84.000	Flow: Both
TC1pInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Input Report
Hardee County Landfill
25 year-24 hour storm event

Bot Width(ft): 3.000 3.000
LtSdSlp(h/v): 3.00 3.00
RtSdSlp(h/v): 3.00 3.00

Channel located west of the haul road which runs up the landfill sideslope.

Name: SE Chnl 110	From Node: S. East 110	Length(ft): 370.00
Group: BASE	To Node: SE WEIR 110	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 111.000	110.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 6.000	6.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

Channel located on the south east side of the landfill at elevation 110.

Name: South Channel	From Node: South Channel	Length(ft): 620.00
Group: BASE	To Node: South East LF	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 85.000	83.400	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 6.000	6.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

Channel located on the south-end of the landfill, at the toe of slope.

Name: South Chnl110	From Node: SW 110	Length(ft): 530.00
Group: BASE	To Node: SE WEIR 110	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft): 112.500	110.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.000
Manning's N: 0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft): 0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft): 0.000	0.000	Exit Loss Coef: 0.000
Main XSec:		Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):		Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft): 6.000	6.000	
LtSdSlp(h/v): 3.00	3.00	
RtSdSlp(h/v): 3.00	3.00	

Channel located on the south side of the landfill at elevation 110.

Name: West Channel	From Node: West Channel	Length(ft): 980.00
Group: BASE	To Node: North Channel	Count: 1

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Input Report
Hardee County Landfill
25 year-24 hour storm event

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft):	85.000	84.000	Flow: Both
TClipInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.000
Manning's N:	0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft):	0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft):	0.000	0.000	Exit Loss Coef: 0.000
Main XSec:			Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):			Inlet Ctrl Spec: Use dn
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):			
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):	10.000	8.000	
LtSdSlp(h/v):	8.68	5.40	
RtSdSlp(h/v):	4.15	4.90	

Channel located on the west side of the landfill. Conveys stormwater to the North Channel, which eventually flows to the primary stormwater treatment pond.

Name: West Chnl 110 From Node: SW 110 Length(ft): 980.00
 Group: BASE To Node: NW WEIR 110 Count: 1

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Trapezoidal	Trapezoidal	Solution Algorithm: Automatic
Invert(ft):	112.500	110.000	Flow: Both
TClipInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.000
Manning's N:	0.025000	0.025000	Expansion Coef: 0.000
Top Clip(ft):	0.000	0.000	Entrance Loss Coef: 0.000
Bot Clip(ft):	0.000	0.000	Exit Loss Coef: 0.000
Main XSec:			Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):			Inlet Ctrl Spec: Use dn
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):			
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):	6.000	6.000	
LtSdSlp(h/v):	3.00	3.00	
RtSdSlp(h/v):	3.00	3.00	

Channel located on the west side of the landfill at elevation 110.

=====
Drop Structures
=====

Name: Primary Drop From Node: Primary Pond Length(ft): 45.00
 Group: BASE To Node: Bayhead Count: 1

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Circular	Circular	Solution Algorithm: Automatic
Span(in):	30.00	30.00	Flow: Both
Rise(in):	30.00	30.00	Entrance Loss Coef: 0.500
Invert(ft):	81.170	80.940	Exit Loss Coef: 1.000
Manning's N:	0.024000	0.024000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in):	0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Represents the drop structure within the primary pond.

30" CMP drop structure located in the Primary Pond.

*** Weir 1 of 2 for Drop Structure Primary Drop ***

Count: 1	Bottom Clip(ft): 0.000	TABLE
Type: Vertical: Mavis	Top Clip(ft): 0.000	
Flow: Both	Weir Disc Coef: 3.200	
Geometry: Irregular	Orifice Disc Coef: 0.600	

Cross Section: Primary Weir	Control Elev(ft): 82.290
Invert(ft): 82.290	Struct Opening Dim(ft): 9999.00

*** Weir 2 of 2 for Drop Structure Primary Drop ***

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Input Report
 Hardee County Landfill
 25 year-24 hour storm event

TABLE

Count: 1
 Type: Horizontal
 Flow: Both
 Geometry: Arch
 Span(in): 54.00
 Rise(in): 27.00
 Bottom Clip(in): 0.000
 Top Clip(in): 0.000
 Weir Disc Coef: 3.200
 Orifice Disc Coef: 0.600
 Invert(ft): 85.020
 Control Elev(ft): 85.020

=====
 Weirs
 =====

Name: C&D Pond From Node: C&D South Pond
 Group: BASE To Node: OffsiteChannels
 Flow: Both Count: 1
 Type: Vertical: Mavis Geometry: Rectangular
 Span(in): 40.00
 Rise(in): 6.00
 Invert(ft): 80.000
 Control Elevation(ft): 80.000

TABLE

Bottom Clip(in): 0.000
 Top Clip(in): 0.000
 Weir Discharge Coef: 3.000
 Orifice Discharge Coef: 0.600

This weir simulates sheet flow from the "C&D South Pond" into the channel that drains offsite.

Name: NE WEIR 110 From Node: NE WEIR 110
 Group: BASE To Node: NE-Drop110
 Flow: Both Count: 1
 Type: Horizontal Geometry: Rectangular
 Span(in): 24.00
 Rise(in): 37.00
 Invert(ft): 110.000
 Control Elevation(ft): 110.000

TABLE

Bottom Clip(in): 0.000
 Top Clip(in): 0.000
 Weir Discharge Coef: 3.000
 Orifice Discharge Coef: 0.600

Represents the drop inlet on the north east corner of the landfill at elevation 110.

Name: NE WEIR 135 From Node: NE-Weir 135
 Group: BASE To Node: NE-Drop135
 Flow: Both Count: 1
 Type: Horizontal Geometry: Rectangular
 Span(in): 24.00
 Rise(in): 37.00
 Invert(ft): 135.000
 Control Elevation(ft): 135.000

TABLE

Bottom Clip(in): 0.000
 Top Clip(in): 0.000
 Weir Discharge Coef: 3.000
 Orifice Discharge Coef: 0.600

Represents the drop inlet on the northeast corner of the landfill at elevation 135.

Name: NW WEIR 110 From Node: NW WEIR 110
 Group: BASE To Node: NW-Drop110
 Flow: Both Count: 1
 Type: Horizontal Geometry: Rectangular
 Span(in): 24.00
 Rise(in): 37.00
 Invert(ft): 110.000
 Control Elevation(ft): 110.000

TABLE

Bottom Clip(in): 0.000
 Top Clip(in): 0.000
 Weir Discharge Coef: 3.000

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Input Report
Hardee County Landfill
25 year-24 hour storm event

Orifice Discharge Coef: 0.600

Represents the drop inlet on the north west corner of the landfill at elevation 110.

```

-----
Name: NW WEIR 135           From Node: NW-Weir 135
Group: BASE                To Node: NW-Drop135
Flow: Both                 Count: 1
Type: Horizontal           Geometry: Rectangular

Span(in): 24.00
Rise(in): 37.00
Invert(ft): 135.000
Control Elevation(ft): 135.000

TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.000
Orifice Discharge Coef: 0.600

```

Represents the drop inlet on the north west corner of the landfill at elevation 135.

```

-----
Name: OFFSITE FLOW        From Node: N Offsite Pond
Group: BASE                To Node: Gun Range Pond
Flow: Both                 Count: 1
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 72.00
Rise(in): 6.00
Invert(ft): 82.280
Control Elevation(ft): 82.280

TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.000
Orifice Discharge Coef: 0.600

```

This long, shallow weir simulates sheet flow from the offsite pond into the "gun range pond."

```

-----
Name: OVERLAND FLOW       From Node: Gun Range Pond
Group: BASE                To Node: BAYHEAD
Flow: Both                 Count: 1
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 72.00
Rise(in): 6.00
Invert(ft): 80.570
Control Elevation(ft): 80.570

TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.000
Orifice Discharge Coef: 0.600

```

This long, shallow weir simulates sheet flow from the "gun range pond" into the "Bayhead."

```

-----
Name: SE WEIR 110         From Node: SE WEIR 110
Group: BASE                To Node: SE-Drop110
Flow: Both                 Count: 1
Type: Horizontal           Geometry: Rectangular

Span(in): 24.00
Rise(in): 37.00
Invert(ft): 110.000
Control Elevation(ft): 110.000

TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.000
Orifice Discharge Coef: 0.600

```

Represents the drop inlet on the south west corner of the landfill at elevation 110.

=====
Hydrology Simulations
=====

Name: HYDROLOGY

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Input Report
Hardee County Landfill
25 year-24 hour storm event

Filename: F:\PROJECT\Hardee\09199033.09\stormwater\HYDROLOGY.R32

Override Defaults: No

Time(hrs)	Print Inc(min)
30.000	2.00

=====
==== Routing Simulations =====
=====

Name: HYDRAULICS Hydrology Sim: HYDROLOGY
Filename: F:\PROJECT\Hardee\09199033.09\stormwater\HYDRAULICS.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00	Delta Z Factor: 0.50000
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 30.00
Min Calc Time(sec): 0.5000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
30.000	15.000
336.000	60.000

Group	Run
BASE	Yes

=====
==== Boundary Conditions =====
=====

F:\project\Hardee\09199033.09\stormwater\landfillclosure.icp

Stormwater Model Results
(ICPR)

Node Maximum Conditions
Hardee County Landfill
25 year-24 hour storm event

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Bayhead	BASE	HYDRAULICS	14.39	80.906	83.000	0.0157	528911	12.40	170.448	14.77	46.388
Borrow Pit	BASE	HYDRAULICS	24.30	75.716	83.000	0.0056	240855	12.00	43.209	0.00	0.000
BOUNDARY	BASE	HYDRAULICS	0.00	73.410	83.000	0.0000	2	12.89	63.795	0.00	0.000
C&D Chnl	BASE	HYDRAULICS	12.02	83.188	83.500	0.0219	4766	12.06	12.986	12.16	15.618
C&D Pipe	BASE	HYDRAULICS	12.18	82.644	83.000	0.0269	6598	12.16	15.618	12.18	9.653
C&D South Pond	BASE	HYDRAULICS	30.00	78.015	83.000	0.0242	18241	12.18	11.009	0.00	0.000
East Channel	BASE	HYDRAULICS	12.90	85.071	85.500	0.0340	11727	11.89	22.744	12.90	67.342
Gun Range Pond	BASE	HYDRAULICS	13.34	83.082	85.000	0.0211	34582	12.30	36.805	13.30	21.708
Marshland	BASE	HYDRAULICS	12.85	85.005	86.000	-0.1164	14871	12.08	40.743	12.85	121.548
N Offsite Pond	BASE	HYDRAULICS	12.99	84.867	85.000	0.0318	21519	12.40	34.982	12.85	19.841
N.EastBench110	BASE	HYDRAULICS	12.01	111.335	113.000	0.0153	1686	12.00	2.508	12.01	2.469
NE WEIR 110	BASE	HYDRAULICS	12.02	110.239	112.000	0.0100	1629	12.00	3.593	12.02	3.565
NE-Drop110	BASE	HYDRAULICS	11.99	108.249	112.000	0.0890	282	11.98	10.597	11.99	8.284
NE-Drop135	BASE	HYDRAULICS	11.98	133.139	137.000	0.2074	215	11.35	0.842	11.98	7.132
NE-Weir 135	BASE	HYDRAULICS	11.35	135.091	137.000	-0.0404	113	12.10	4.261	11.35	0.842
North Channel	BASE	HYDRAULICS	12.62	84.872	86.000	0.0237	12593	12.03	23.826	12.09	25.818
NW WEIR 110	BASE	HYDRAULICS	12.24	110.297	112.000	0.0061	4067	12.21	4.999	12.24	4.946
NW-Drop110	BASE	HYDRAULICS	12.12	108.263	112.000	0.0647	296	12.10	9.600	12.12	8.454
NW-Drop135	BASE	HYDRAULICS	11.98	132.992	137.000	0.1530	236	11.45	1.027	11.98	5.598
NW-Weir 135	BASE	HYDRAULICS	11.45	135.104	137.000	-0.0617	113	12.10	3.757	11.45	1.027
OffsiteChannelN	BASE	HYDRAULICS	12.73	80.194	83.000	0.0858	7209	12.68	60.214	12.74	60.265
OffsiteChannels	BASE	HYDRAULICS	12.89	79.431	83.000	-0.1493	8436	12.74	60.265	12.89	63.795
Primary Pond	BASE	HYDRAULICS	12.84	84.926	86.000	0.0376	51644	12.85	188.849	12.84	12.653
Road Ditch	BASE	HYDRAULICS	12.01	134.266	135.000	0.0092	1512	12.00	2.556	12.01	2.538
S. East 110	BASE	HYDRAULICS	11.92	111.431	113.000	0.0300	1714	12.00	5.632	12.01	5.826
Scalehouse Pond	BASE	HYDRAULICS	24.30	82.725	83.000	0.0313	22639	11.99	12.617	0.00	0.000
SE WEIR 110	BASE	HYDRAULICS	12.08	110.599	112.000	0.0154	4287	12.05	14.408	12.08	14.156
SE-Drop110	BASE	HYDRAULICS	12.09	108.964	112.000	0.0465	162	12.08	14.156	12.09	14.152
South Channel	BASE	HYDRAULICS	11.87	85.410	86.000	0.0213	2730	12.00	4.827	11.95	6.478
South East LF	BASE	HYDRAULICS	12.47	85.132	85.500	0.0459	12228	12.03	24.064	11.89	13.521
South Pond	BASE	HYDRAULICS	24.30	79.031	83.000	0.0073	130756	11.99	28.003	0.00	0.000
SW 110	BASE	HYDRAULICS	12.20	112.992	114.500	0.0078	6743	12.10	14.078	12.17	13.163
West Channel	BASE	HYDRAULICS	12.03	85.656	86.000	0.0247	8835	12.00	11.690	12.03	10.961

The node maximum conditions report demonstrates the maximum stage, inflow, and outflow for a particular node. Comparing the maximum stage to the warning stage shows if a particular node is overflowing (note: the warning stages are set at a critical elevation, such as the elevation of a road).

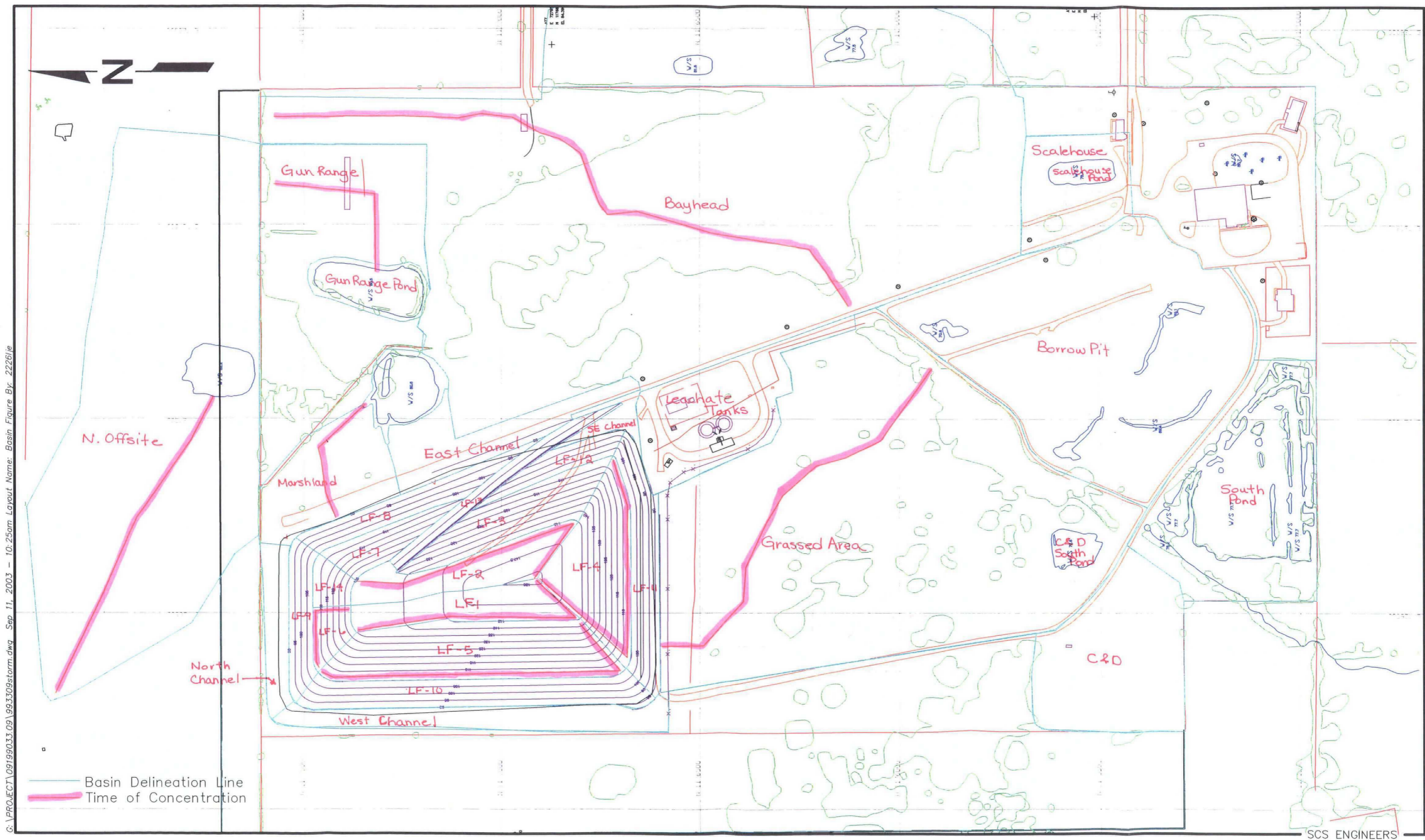
The discharge off site must be less than the predeveloped offsite discharge of 123.35 cfs. The "Boundary" node represents the offsite discharge location. The maximum inflow to the "Boundary" node is approximately 63.8 cfs, which is substantially less than the anticipated 123.35 cfs for predeveloped

Link Connectivity
 Hardee County Landfill
 Landfill Closure Stormwater Calculations
 25 Year - 24 Hour Storm Event

Name	Group	From Node	To Node	Type	U/S Geometry	D/S Geometry	Flow Dir	Count
18" C&D Pipe	BASE	C&D Pipe	C&D South Pond	Pipe	Circular	Circular	Both	1
18" South Pond	BASE	SOUTH POND	Borrow Pit	Pipe	Circular	Circular	Both	1
19x30 Haul Rd	BASE	BAYHEAD	OffSiteChannelN	Pipe	Horz Ellipse	Horz Ellipse	Both	1
19x30 Haul Rd 2	BASE	BAYHEAD	OffSiteChannelN	Pipe	Horz Ellipse	Horz Ellipse	Both	1
19X30 LF	BASE	South East LF	East Channel	Pipe	Horz Ellipse	Horz Ellipse	Both	1
30" Boundary	BASE	OffsiteChannels	BOUNDARY	Pipe	Circular	Circular	Both	1
NE Drop 110	BASE	NE-Drop110	Marshland	Pipe	Circular	Circular	Both	1
NE Drop 135	BASE	NE-Drop135	NE-Drop110	Pipe	Circular	Circular	Both	1
NW Drop 110	BASE	NW-Drop110	North Channel	Pipe	Circular	Circular	Both	1
NW Drop 135	BASE	NW-Drop135	NW-Drop110	Pipe	Circular	Circular	Both	1
SE Drop 110	BASE	SE-Drop110	South East LF	Pipe	Circular	Circular	Both	1
C&D Channel	BASE	C&D Chnl	C&D Pipe	Channel	Trapezoidal	Trapezoidal	Both	1
East Channel	BASE	East Channel	Primary Pond	Channel	Trapezoidal	Trapezoidal	Both	1
N. Marsh Chnl	BASE	Marshland	Primary Pond	Channel	Trapezoidal	Trapezoidal	Both	1
NE Chnl 110	BASE	N.EastBench110	NE WEIR 110	Channel	Trapezoidal	Trapezoidal	Both	1
North Channel	BASE	North Channel	Marshland	Channel	Trapezoidal	Trapezoidal	Both	1
Off Site Chnl	BASE	OffSiteChannelN	OffsiteChannels	Channel	Trapezoidal	Trapezoidal	Both	1
Road Swale	BASE	Road Ditch	South East LF	Channel	Trapezoidal	Trapezoidal	Both	1
SE Chnl 110	BASE	S. East 110	SE WEIR 110	Channel	Trapezoidal	Trapezoidal	Both	1
South Channel	BASE	South Channel	South East LF	Channel	Trapezoidal	Trapezoidal	Both	1
South Chnl110	BASE	SW 110	SE WEIR 110	Channel	Trapezoidal	Trapezoidal	Both	1
West Channel	BASE	West Channel	North Channel	Channel	Trapezoidal	Trapezoidal	Both	1
West Chnl 110	BASE	SW 110	NW WEIR 110	Channel	Trapezoidal	Trapezoidal	Both	1
C&D Pond	BASE	C&D South Pond	OffsiteChannels	Vertical WGO	Mavis	Rectangular	Both	1
NE WEIR 110	BASE	NE WEIR 110	NE-Drop110	Horizontal WGO		Rectangular	Both	1
NE WEIR 135	BASE	NE-Weir 135	NE-Drop135	Horizontal WGO		Rectangular	Both	1
NW WEIR 110	BASE	NW WEIR 110	NW-Drop110	Horizontal WGO		Rectangular	Both	1
NW WEIR 135	BASE	NW-Weir 135	NW-Drop135	Horizontal WGO		Rectangular	Both	1
OFFSITE FLOW	BASE	N Offsite Pond	Gun Range Pond	Vertical WGO	Mavis	Rectangular	Both	1
OVERLAND FLOW	BASE	Gun Range Pond	BAYHEAD	Vertical WGO	Mavis	Rectangular	Both	1
SE WEIR 110	BASE	SE WEIR 110	SE-Drop110	Horizontal WGO		Rectangular	Both	1
Primary Drop	BASE	Primary Pond	Bayhead	Drop Structure		Circular	Both	1
--> slot	BASE	Primary Pond	Bayhead	Vertical WGO	Mavis	Irregular	Both	1
--> slot	BASE	Primary Pond	Bayhead	Horizontal WGO		Arch	Both	1

27 of 49

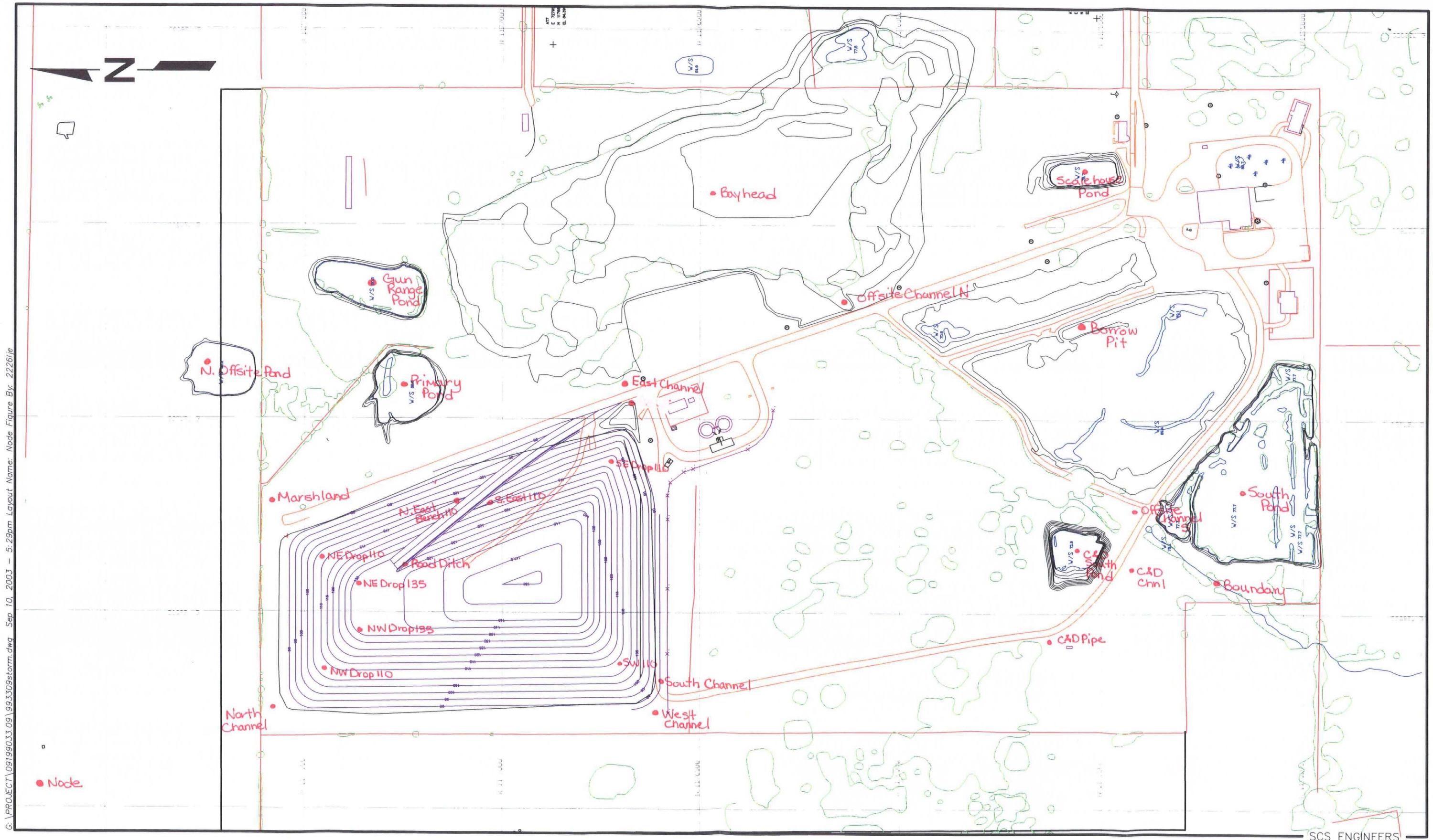
Stormwater Model Figures



G:\PROJECT\09199033\09\99330storm.dwg Sep 11, 2003 - 10:25am Layout Name: Basin Figure Bx: 22261e

SCS ENGINEERS

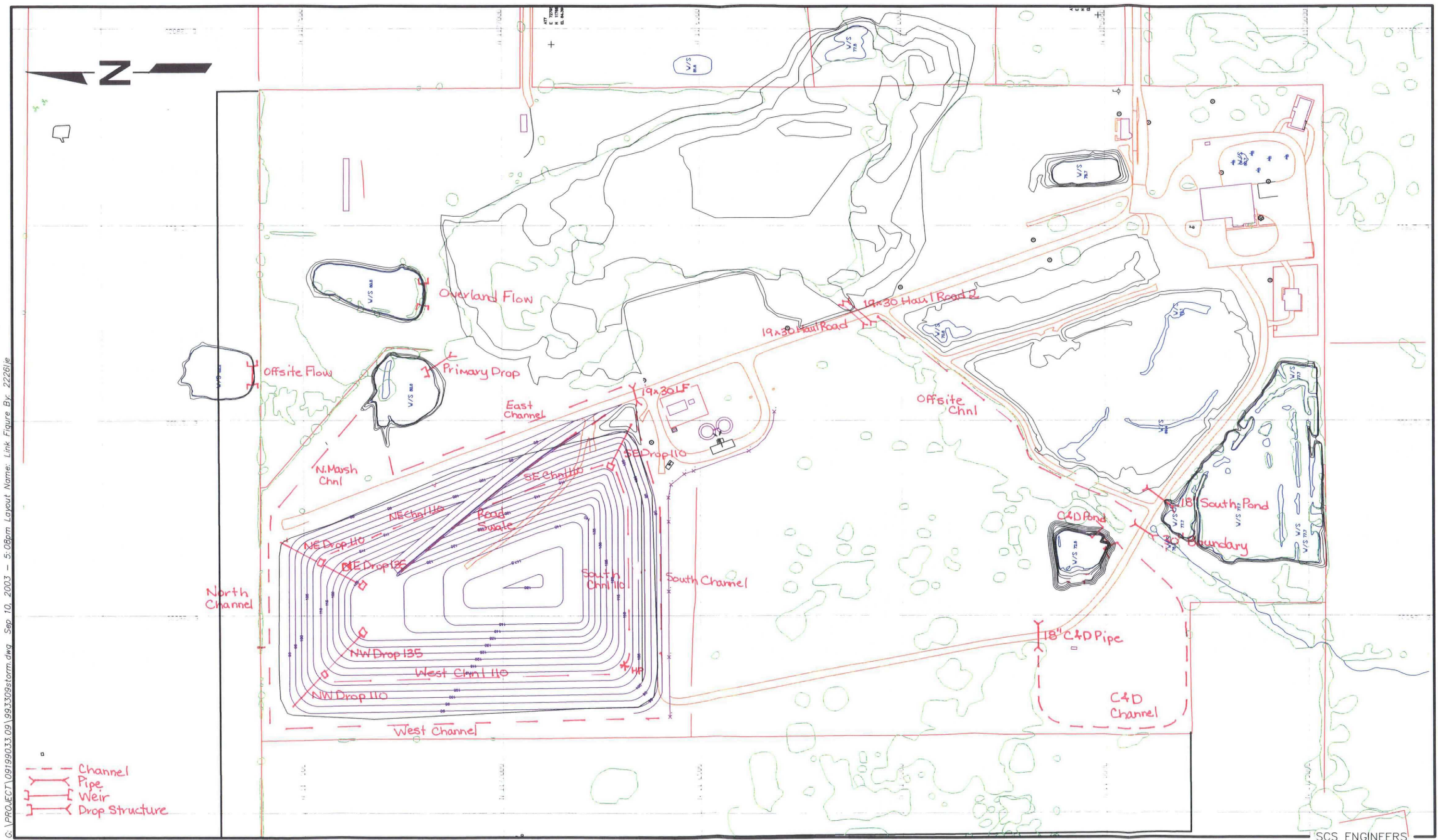
Figure 1. Basin Map, Hardee County Landfill, Hardee County, Florida



G:\PROJECT\09199033.09\993309storm.dwg Sep 10, 2003 - 5:29pm Layout Name: Node Figure Bx: 22261e

SCS ENGINEERS

Figure 2. Node Placement, Hardee County Landfill, Hardee County, Florida



C:\PROJECT\09199033\091993309storm.dwg Sep 10, 2003 - 5:06pm Layout Name: Link Figure By: 2226lje

SCS ENGINEERS

Figure 3. Link Placement, Hardee County Landfill, Hardee County, Florida

CLIENT
Hardee County

PROJECT
Landfill Closure

JOB NO.
09199033.09

SUBJECT

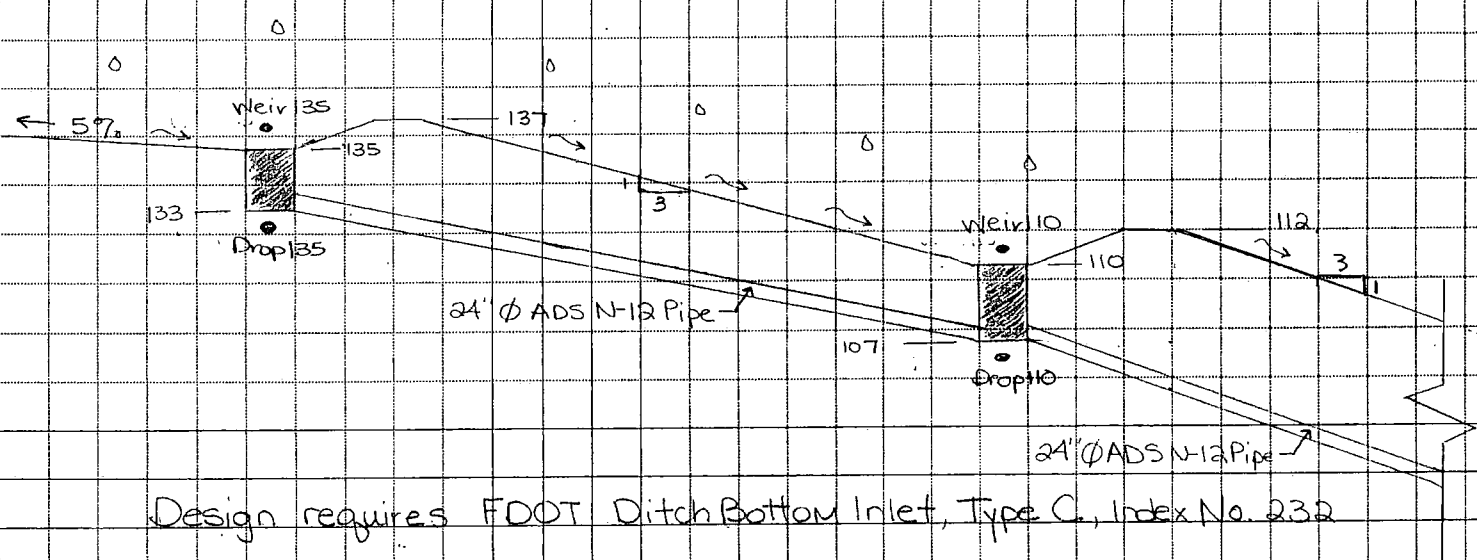
Side Slope Drop Inlet Design

BY
LEK

DATE
9/11/03

CHECKED

DATE



Design requires FDOT Ditch Bottom Inlet, Type C, Index No. 232

FIGURE 4

Basin Delineation Table

Basin Areas
Hardee County Landfill Closure
Stormwater Calculations

Landfill	Area (sf)	Area (acres)
LF-1	42,083	0.97
LF-2	47,864	1.10
LF-3	51,674	1.19
LF-4	68,155	1.56
LF-5	97,959	2.25
LF-6	12,663	0.29
LF-7	23,171	0.53
LF-8	33,760	0.78
LF-9	23,529	0.54
LF-10	62,533	1.44
LF-11	44,424	1.02
LF-12	18,539	0.43
LF-13	23,404	0.54
LF-14	10,568	0.24
Total Landfill Area:	560,326	13

Treatment Ponds

Primary Pond	30,049	0.7
South Pond	198,357	4.6
Scalehouse Pond	17,346	0.4
Gun Range Pond	34,271	0.8

On-Site Stormwater Basins

Marshland	77,228	1.8
Gun Range	249,173	5.7
East Channel	59,144	1.4
SE Channel	12,050	0.3
Bayhead*	1,063,494	53.4
Grassed Area	708,721	16.3
Leachate Tanks	100,718	2.3
Scalehouse	71,774	1.6
Borrow Pit	397,645	9.1
C&D	134,315	3.1
South C&D Pond	22,081	0.5
North Channel	26,629	0.6
West Channel	44,942	1.0

Stormwater Basins that Flow Off-site

West Basin ¹	834,307	19.2
South East Basin ²	270,927	6.2
Total Site Area:	5,473,823	115

Area of site per Chastain Skillman = 115.84 acres.

Off-Site Stormwater Basins

Off-site Bayhead ³	1,263,804	29.0
N. Offsite ⁴	602,479	13.8

*: Acreage is comprised of Bayhead basin and Off-site Bayhead basin.

1: West Basin represents the western strip of the site; stormwater flows off-site to the neighboring pasture.

2: South East Basin represents the south east corner of the site; stormwater flows off-site.

3: Bayhead receives stormwater runoff from the pasture area located east of the site. Area obtained from the USGS map (see pre-developed calculations).

4: N. Offsite basin represents the basin north of the site; stormwater flows onsite from the pasture.

Curve Number Determination

CLIENT Hardee County	PROJECT Landfill Expansion	JOB NO. 09199033.09
SUBJECT	BY LEK	DATE 9/10/03
CURVE NUMBER DETERMINATION	CHECKED	DATE

Hydrologic Soil DETERMINATION

As shown on the attached sheets (Sheet B), the site is primarily composed of Pavona, Floridana, Farmton, and Kaliga Soils. All the above mentioned soils are classified as "B" and "D" hydrologic groups. A median soil value of "C" was used for the hydrologic group (for modeling purposes).

GROUP C:

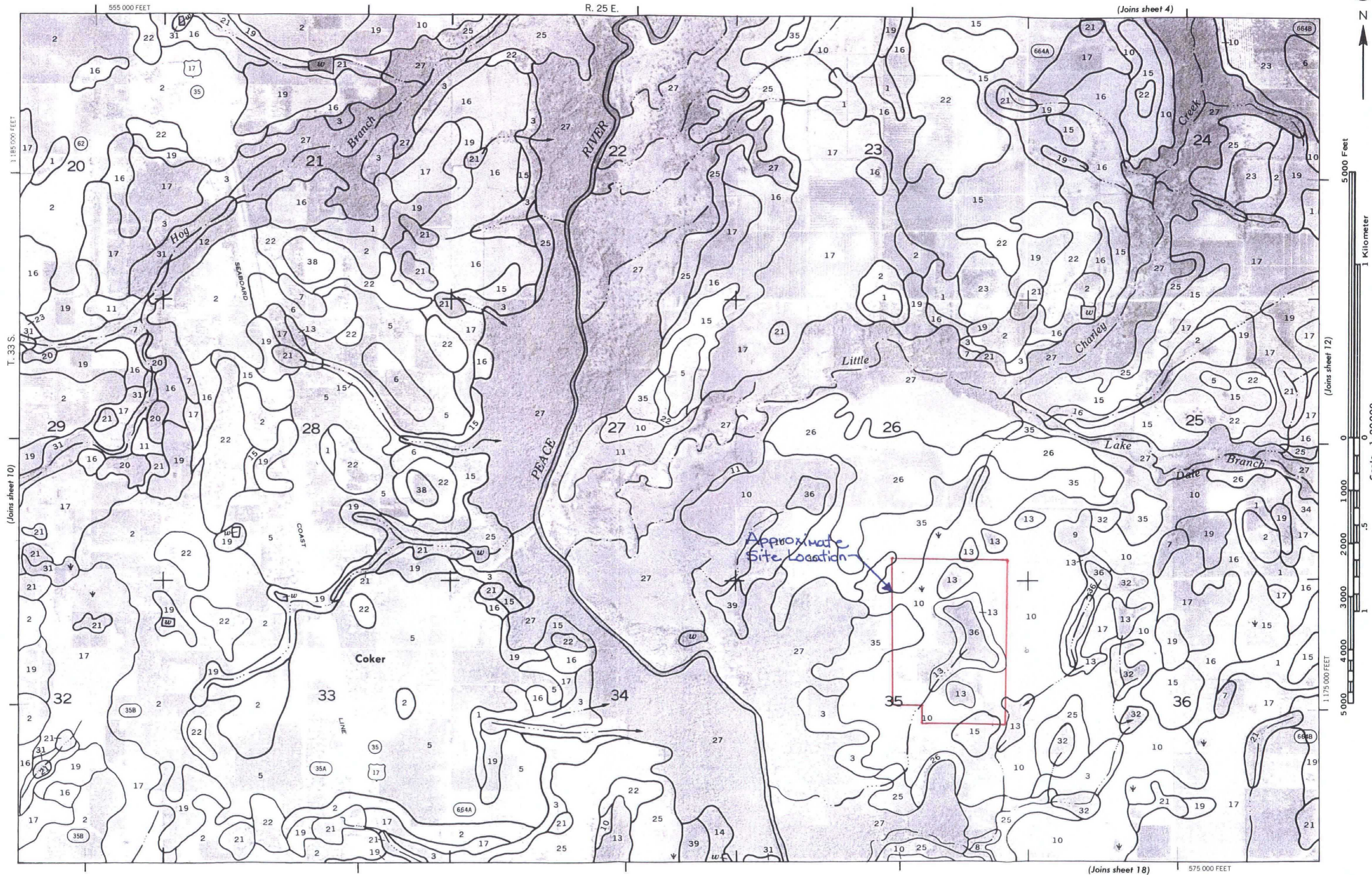
"Soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture."

USDA, TR-55 APPENDIX A

CURVE NUMBER

The following curve numbers were used in the stormwater model post landfill closure. Back-up is locate on Sheets B thru

	CURVE NUMBER	
Ponds	98	Impervious area
Buildings	98	Impervious area
Landfill	74	Open space, good condition
Grossed Areas	74	Pasture, grassland, or range



Source: USDA Soil Conservation Service, Soil Survey of Hardee County, Florida, June, 1984

TABLE 16.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "frequent," "brief," and "apparent" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
1----- Adamsville	C	None-----	---	---	2.0-3.5	Apparent	Jun-Nov	---	---	Low-----	Moderate
2----- Zolfo	C	None-----	---	---	2.0-3.5	Apparent	Jun-Nov	---	---	Low-----	Moderate
3----- Ft. Green	D	None-----	---	---	0-1.0	Apparent	Jun-Sep	---	---	High-----	Moderate
4----- Apopka	A	None-----	---	---	>6.0	---	---	---	---	Moderate	High.
5----- Tavares	A	None-----	---	---	3.5-6.0	Apparent	Jun-Dec	---	---	Low-----	High.
6----- Candler	A	None-----	---	---	>6.0	---	---	---	---	Low-----	High.
7----- Basinger	B/D	None-----	---	---	0-1.0	Apparent	Jun-Feb	---	---	High-----	Moderate
8----- Bradenton	D	Frequent-----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.
9*----- Popash	D	None-----	---	---	+2-1.0	Apparent	Jun-Mar	---	---	Moderate	Moderate
10----- Pomona	B/D	None-----	---	---	0-1.0	Apparent	Jul-Sep	---	---	High-----	High.
11----- Felda	B/D	None-----	---	---	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate
12----- Felda	B/D	Frequent-----	Brief-----	Jul-Feb	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate
13----- Floridana	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	Moderate	Low.
15----- Immokalee	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
16----- Myakka	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
17----- Smyrna	B/D	None-----	---	---	0-1.0	Apparent	Jul-Oct	---	---	High-----	High.
18----- Cassia	C	None-----	---	---	1.5-3.5	Apparent	Jul-Jan	---	---	Moderate	High.
19----- Ona	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	High.
20*----- Samsula	B/D	None-----	---	---	+2-1.0	Apparent	Jan-Dec	16-20	30-36	High-----	High.
21*----- Placid	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Mar	---	---	High-----	High.
22----- Pomello	C	None-----	---	---	2.0-3.5	Apparent	Jul-Nov	---	---	Low-----	High.
23----- Sparr	C	None-----	---	---	1.5-3.5	Apparent	Jul-Oct	---	---	Moderate	High.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Subsidence		Risk of co	
		Frequency	Duration	Months	Depth	Kind	Months	Ini-tial	Total	Uncoated steel	C
24----- Jonathan	B	None-----	---	---	3.0-5.0	Apparent	Jun-Oct	---	---	Low-----	I
25----- Wabasso	B/D	None-----	---	---	0-1.0	Apparent	Jun-Oct	---	---	Moderate	
26----- Electra	C	None-----	---	---	2.0-3.5	Apparent	Jul-Oct	---	---	Low-----	High..
27: Bradenton-----	D	Frequent----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.
Felda-----	B/D	Frequent----	Brief-----	Jul-Feb	0-1.0	Apparent	Jul-Mar	---	---	High-----	Moderate.
Chobee-----	B/D	Frequent----	Brief to very long.	Jun-Feb	0-1.0	Apparent	Jun-Feb	---	---	Moderate	Low.
28----- Holopaw	B/D	None-----	---	---	0-1.0	Apparent	Jun-Nov	---	---	High-----	Moderate.
29. Pits											
30*----- Hontoon	B/D	None-----	---	---	+2-1.0	Apparent	Jan-Dec	16-24	>52	High-----	High.
31----- Pompano	D	Frequent----	Brief-----	Jun-Nov	0-1.0	Apparent	Jun-Nov	---	---	High-----	Moderate.
32*----- Felda	D	None-----	---	---	+2-1.0	Apparent	Jun-Dec	---	---	High-----	High.
33*----- Manatee	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	High-----	Low.
34----- Wauchula	B/D	None-----	---	---	0-1.0	Apparent	Jun-Feb	---	---	High-----	High.
35*----- Farmton	B/D	None-----	---	---	0-1.0	Apparent	Jun-Oct	---	---	High-----	High.
36*----- Kaliga	B/D	None-----	---	---	+2-0	Apparent	Jun-Apr	16-20	24-45	High-----	High.
37*----- Basinger	B/D	None-----	---	---	+2-1.0	Apparent	Jun-Feb	---	---	High-----	Moderate.
38----- St. Lucie	A	None-----	---	---	>6.0	---	---	---	---	Low-----	Moderate.
39----- Bradenton	B/D	None-----	---	---	0-1.0	Apparent	Jun-Dec	---	---	High-----	Low.

* In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Table 2-2a.—Runoff curve numbers for urban areas¹

Cover description	Average percent impervious area ²	Curve numbers for hydrologic soil group—			
		A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ³ :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)					
		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)					
		98	98	98	98
Paved; open ditches (including right-of-way)					
		83	89	92	93
Gravel (including right-of-way)					
		76	85	89	91
Dirt (including right-of-way)					
		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...					
		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)					
		96	96	96	96
Urban districts:					
Commercial and business					
	85	89	92	94	95
Industrial					
	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)					
	65	77	85	90	92
1/4 acre					
	38	61	75	83	87
1/3 acre					
	30	57	72	81	86
1/2 acre					
	25	54	70	80	85
1 acre					
	20	51	68	79	84
2 acres					
	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) ⁵					
		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹Average runoff condition, and $I_p = 0.2S$.

²The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c.—Runoff curve numbers for other agricultural lands¹

Cover description		Curve numbers for hydrologic soil group—			
		A	B	C	D
Cover type	Hydrologic condition				
Pasture, grassland, or range—continuous forage for grazing. ²	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. ³	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30	48	65	73
Woods—grass combination (orchard or tree farm). ⁵	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. ⁶	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

¹Average runoff condition, and $I_a = 0.2S$.

²Poor: <50% ground cover or heavily grazed with no mulch.
 Fair: 50 to 75% ground cover and not heavily grazed.
 Good: >75% ground cover and lightly or only occasionally grazed.

³Poor: <50% ground cover.
 Fair: 50 to 75% ground cover.
 Good: >75% ground cover.

⁴Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and-pasture.

⁶Poor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
 Fair: Woods are grazed but not burned, and some forest litter covers the soil.
 Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Time of Concentration
(TR-55 Method)

Project : Hardee County Landfill

User: LEK

Date: 08-24-2003

County : Hardee

State: FL

Checked: _____

Date: _____

Subtitle: Landfill Closure

----- Subarea #1 - LF-1 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	137.4	.05	E					0.129
Shallow Concent'd		318.7	.0025	U					0.110
Shallow Concent'd		233.4	.0025	U					0.080

Time of Concentration = $0.32^* = 19.2 \text{ min}$
=====

----- Subarea #2 - LF-2 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	173.3	.05	E					0.155
Shallow Concent'd		456.7	.0025	U					0.157
Shallow Concent'd		116.5	.043	U					0.010

Time of Concentration = $0.32^* = 19.2 \text{ min}$
=====

----- Subarea #3 - LF-4 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	299.3	.05	E					0.240
Shallow Concent'd		389.8	.0025	U					0.134
Shallow Concent'd		124.4	.0025	U					0.043

Time of Concentration = $0.42^* = 25.2 \text{ min}$
=====

----- Subarea #4 - LF-5 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	159.2	.2857	E					0.072
Shallow Concent'd		757.8	.0025	U					0.261

Time of Concentration = $0.33^* = 19.8 \text{ min}$
=====

See Figure 1 for Time of Concentration paths.

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : Hardee County Landfill
County : Hardee
Subtitle: Landfill Closure

User: LEK
Checked: _____

Date: 08-24-2003
Date: _____

----- Subarea #5 - GRASSD -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	107.1	.0028	E					0.335
Sheet		151.7	.002	E					0.506
Shallow Concent'd		484.6	.0060	U					0.108
Shallow Concent'd		328.1	.0063	U					0.071

Time of Concentration = 1.02* = 61.2 min
=====

Represents the "Grassed Area" basin

----- Subarea #6 - BAYHED -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	20.4	.546	E					0.011
Sheet		279.5	.039	E					0.251
Shallow Concent'd		491.6	.0041	U					0.132
Shallow Concent'd		880.2	.0023	U					0.316

Time of Concentration = 0.71* = 42.6 min
=====

Represents the "Bayhead" basin

----- Subarea #7 - TANKS -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	92.75	.0539	E					0.091
Sheet		71.96	.0139	E					0.128
Shallow Concent'd		248.6	.1207	U					0.012

Time of Concentration = 0.23* = 13.8 min
=====

Represents the "Leachate Tanks" basin

----- Subarea #8 - MARSH -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	63.33	.0474	E					0.071
Sheet		116.9	.0256	E					0.148
Shallow Concent'd		160.7	.0062	U					0.035

Time of Concentration = 0.25* = 15 min
=====

Represents the "Marshland" basin

----- Subarea #9 - OFFSIT -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	300	.0033	E					0.714
Shallow Concent'd		586	.0048	U					0.146

Time of Concentration = 0.86* = 51.6 min
=====

Represents the "N. Offsite" basin

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : Hardee County Landfill

User: LEK

Date: 08-24-2003

County : Hardee

State: FL

Checked: _____

Date: _____

Subtitle: Landfill Closure

----- Subarea #10 - GUN -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	4.1	20.4	.546	E					0.011
Sheet		279.5	.0072	E					0.494
Shallow Concent'd		155.3	.0129	U					0.024

Time of Concentration = 0.53* = 31.8 Min
=====

--- Sheet Flow Surface Codes ---

- A Smooth Surface
- B Fallow (No Res.)
- C Cultivated < 20 % Res.
- D Cultivated > 20 % Res.
- E Grass-Range, Short
- F Grass, Dense
- G Grass, Burmuda
- H Woods, Light
- I Woods, Dense
- J Range, Natural

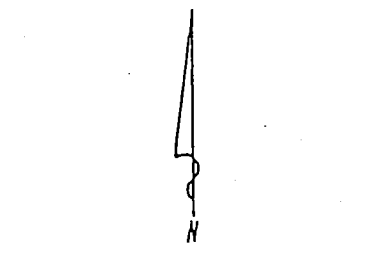
- Shallow Concentrated ---
- Surface Codes ---
- P Paved
- U Unpaved

Represents the "Gun Range" basin

Supplemental Information

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

TWENTY FOUR HOUR
TWO YEAR
RETURN PERIOD
RAINFALL MAP



- LEGEND
- 10 - RAINFALL CONTOUR IN INCHES.
 - BOUNDARY OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
 - - - COUNTY BOUNDARY

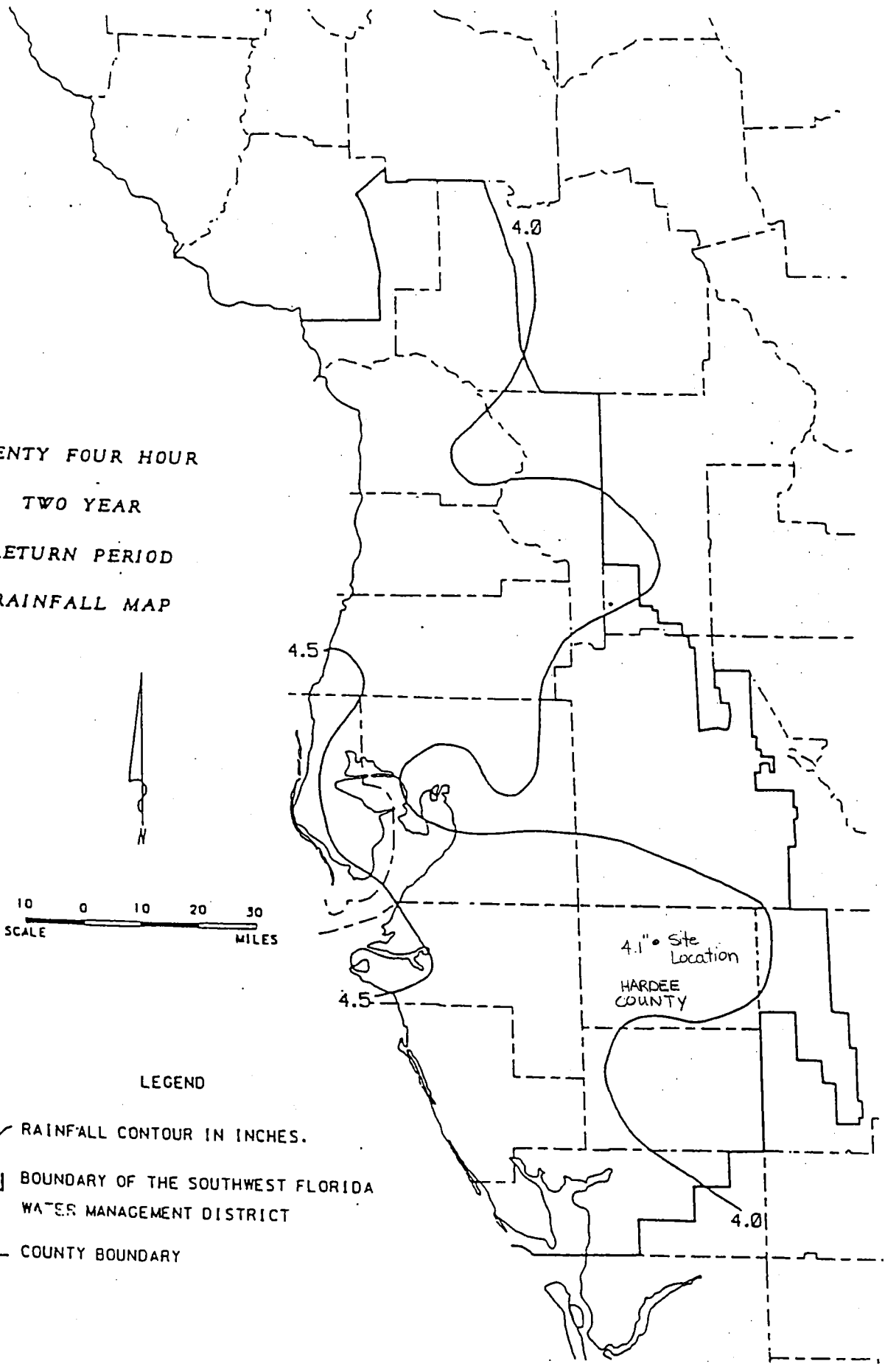
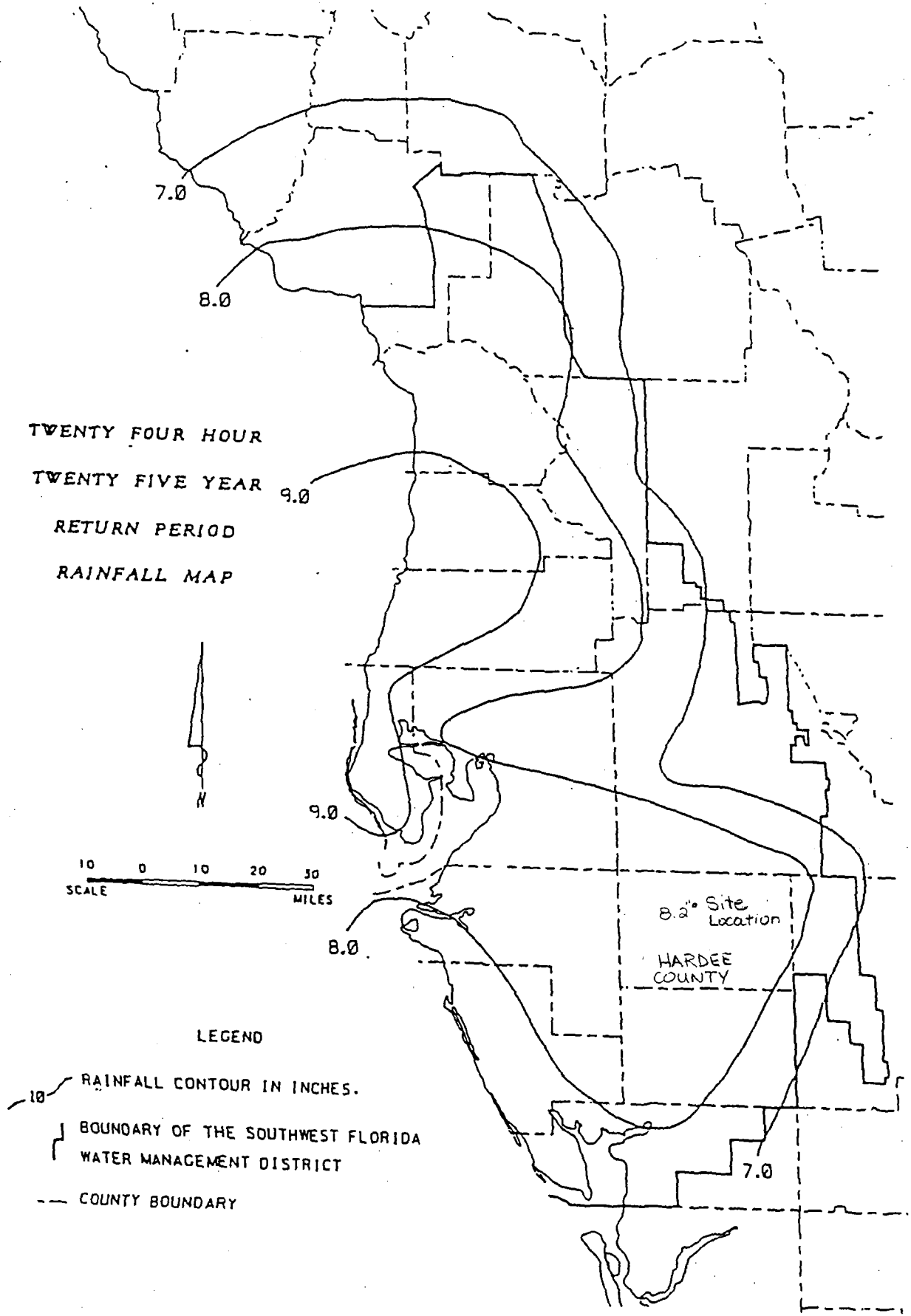
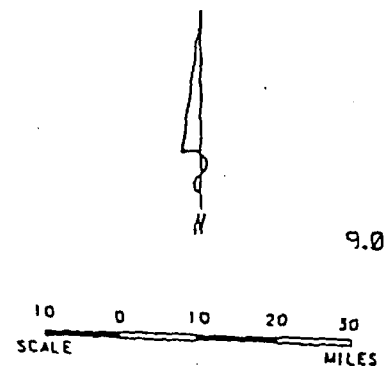


Figure C-1

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



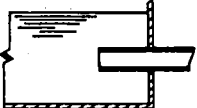
TWENTY FOUR HOUR
 TWENTY FIVE YEAR
 RETURN PERIOD
 RAINFALL MAP



- LEGEND
- - - RAINFALL CONTOUR IN INCHES.
 - BOUNDARY OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
 - - - COUNTY BOUNDARY

CHICAGO PUMP®

**hydraulics
and useful
information**

Nature of Special Resistance	Loss in Terms Multiple of $V^2/2g$	Authority
<u>Shear Gate</u> Wide open (orifice)	1.80	Am. & New Eng. W. W. Stds.
Entrance Losses		
Pipe projecting into tank (known as Borda Entrance)	0.83	"Hydraulics" Daugherty (Av)
	1.0	"Hydraulics" Schoder & Dawson
End of pipe flush with tank (ordinary sq. edged entry)	0.5	"Hydraulics" Daugherty and
		"Hydraulics" Schoder & Dawson
Slightly rounded	0.23	King, "Handbook of
Bellmouthed	0.04	Applied Hydraulics," 3rd Ed. pp. 190-193
Outlet Losses		
From pipe into still water or atmosphere	1.0	"Hydraulics" Schoder & Dawson 1927, p. 201
From pipe to well	$0.9(V_1^2/2g - V_2^2/2g)$	Am. & New Eng. W. W. Stds.
Bellmouthed outlet	$0.1(V_1^2/2g - V_2^2/2g)$	Davis "Handbook of
<u>Sudden Contraction</u>	$(V_1 = \text{vel. in pipe})$	
d/D = 1/4	.42	"Hydraulics"
d/D = 1/2	.33	Daugherty
d/D = 3/4	.19	
<u>Sudden Enlargement</u>		
d/D = 1/4	.92	"Hydraulics"
d/D = 1/2	.56	Daugherty
d/D = 3/4	.19	
<u>Increasesers</u>	$0.25(V_1^2/2g - V_2^2/2g)$	Am. & New Eng.
<u>Increasing Bushing or Coupling</u>	$(V_1 = \text{vel. small end})$	W. W. Stds.
Loss is up to 40% more than caused by sudden enlargement		Tent. Stds. Hydr. Inst.

For the PE Exam
8th Edition

weld, thread, or flange).¹⁵ Because of these many variations, it may be necessary to use a "generic table" of equivalent lengths during the initial design stages. (See Table 17.3 and App. 17.D.)

Table 17.3 Typical Equivalent Lengths
(schedule-40, screwed steel fittings)

fitting type	pipe size		
	1 in	2 in	4 in
	equivalent length, ft		
angle valve	17.0	18.0	18.0
coupling or union	0.29	0.45	0.65
gate valve	0.84	1.5	2.5
globe valve	29.0	54.0	110.0
long radius 90° elbow	2.7	3.6	4.6
regular 45° elbow	1.3	2.7	5.5
regular 90° elbow	5.2	8.5	13.0
swing check valve	11.0	19.0	38.0
tee, flow through line (run)	3.2	7.7	17.0
tee, flow through stem	6.6	12.0	21.0
180° return bend	5.2	8.5	13.0

An alternative method of calculating the minor loss for a fitting is to use the *method of loss coefficients*. Each fitting has a *loss coefficient*, *K*, associated with it, which, when multiplied by the kinetic energy, gives the loss. Thus, a loss coefficient is the minor loss expressed in fractions (or multiples) of the velocity head.

$$h_m = Kh_v \quad 17.41$$

The loss coefficient for any minor loss can be calculated if the equivalent length is known. However, there is no advantage to using one method over the other, except for consistency in calculations.

$$K = \frac{fL_e}{D} \quad 17.42$$

Exact friction loss coefficients for bends, fittings, and valves are unique to each manufacturer. Furthermore, except for contractions, enlargements, exits, and entrances, the coefficients decrease fairly significantly (according to the fourth power of the diameter ratio) with increases in valve size. Therefore, a single *K* value is seldom applicable to an entire family of valves. Nevertheless, generic tables and charts have been developed. These compilations can be used for initial estimates as long as the general nature of the data is recognized.

¹⁵In the language of pipe fittings, a *threaded fitting* is known as a *screwed fitting*, even though no screws are used.

Table 17.4 Typical Loss Coefficients^a

device	K
angle valve	5
bend, close return	2.2
butterfly valve ^b	
2 to 8 in	45 <i>f_t</i>
10 to 14 in	35 <i>f_t</i>
16 to 24 in	25 <i>f_t</i>
check valve, swing, fully open	2.3
corrugated bends	1.3 to 1.6 times value for smooth
standard 90° elbow	0.9
long-radius 90° elbow	0.6
45° elbow	0.42
gate valve	
fully open	0.19
1/4 closed	1.15
1/2 closed	5.6
3/4 closed	24
globe valve	10
meter	
disk or wobble	3.4 to 10
rotary (star or cog-wheel piston)	10
reciprocating piston	15
turbine wheel (double flow)	5 to 7.5
tee, standard	1.8

^aThe actual loss coefficient will usually depend on the size of valve. Average values are given.

^bLoss coefficients for butterfly valves are calculated from correction factors for the pipes with complete turbulent flow.

Loss coefficients for specific fittings and valves must be known in order to be used. They cannot be determined theoretically. However, the loss coefficients for changes in flow area can be calculated from the following equations.¹⁶

- *sudden enlargements*: (*D*₁ is the smaller of the two diameters)

$$K = \left(1 - \left(\frac{D_1}{D_2}\right)^2\right)^2$$

- *sudden contractions*: (*D*₁ is the smaller of the two diameters)

$$K = \frac{1}{2} \left(1 - \left(\frac{D_1}{D_2}\right)^2\right)$$

- *pipe exit*: (projecting exit, sharp-edged or rounded)

$$K = 1.0$$

¹⁶No attempt is made to imply great accuracy with these equations. Correlation between actual and theoretical losses is shown.

APPENDIX 19.A
Manning's Roughness Coefficient,^a n
(design use)

channel material	n^b
plastic (PVC and ABS)	0.009
clean, uncoated cast iron	0.013-0.015
clean, coated cast iron	0.012-0.014
dirty, tuberculated cast iron	0.015-0.035
riveted steel	0.015-0.017
lock-bar and welded steel pipe	0.012-0.013
galvanized iron	0.015-0.017
brass and glass	0.009-0.013
wood stave	
small diameter	0.011-0.012
large diameter	0.012-0.013
concrete	
average value used	0.013
typical commercial, ball and spigot	
rubber gasketed end connections	
- full (pressurized and wet)	0.010
- partially full	0.0085
with rough joints	0.016-0.017
dry mix, rough forms	0.015-0.016
wet mix, steel forms	0.012-0.014
very smooth, finished	0.011-0.012
vitrified sewer	0.013-0.015
common-clay drainage tile	0.012-0.014
asbestos	0.011
planed timber (flume)	0.012 (0.010-0.014)
canvas	0.012
unplaned timber (flume)	0.013 (0.011-0.015)
brick	0.016
rubble masonry	0.017
smooth earth	0.018
firm gravel	0.023
corrugated metal pipe (CMP)	0.024 (see App. 17.F)
natural channels, good condition	0.025
rip rap	0.035
natural channels with stones and weeds	0.035
very poor natural channels	0.060

^aCompiled from various sources.

^bValues outside these ranges have been observed, but these values are typical.

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**HARDEE COUNTY LANDFILL
LATERAL EXPANSION AND
LEACHATE STORAGE TANK FACILITY
RECORD DRAWINGS**

JULY 2000

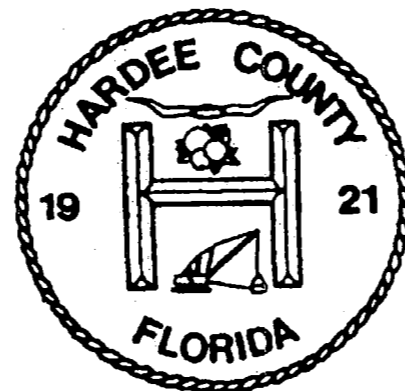
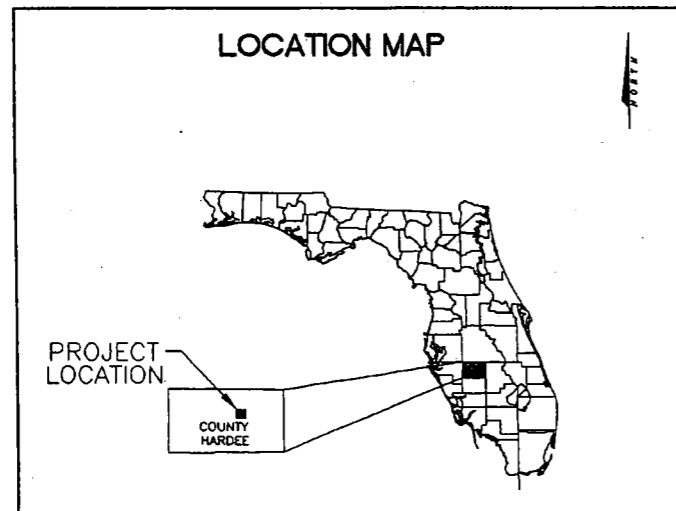
HARDEE COUNTY LANDFILL LATERAL EXPANSION AND LEACHATE STORAGE TANK FACILITY

RECORD DRAWINGS

PREPARED FOR

BOARD OF COUNTY COMMISSIONERS
HARDEE COUNTY, FLORIDA

JULY 2000



DRAWING INDEX	
SHEET	DESCRIPTION
	COVER SHEET
C-1	SITE PLAN
C-2	CONSTRUCTION PLAN
C-3	LEACHATE STORAGE AREA GRADING AND DRAINAGE
C-4	SECTIONS AND DETAILS
C-5	AS BUILT ELEVATIONS
M-1	LEACHATE STORAGE TANKS AND YARD PIPING PLAN
M-2	SUBMERSIBLE LEACHATE PUMP STATION PLAN, SECTION AND DETAILS
M-3	LEACHATE STORAGE TANKS AND TRUCK LOADING PUMP STATION PLAN
M-4	LEACHATE STORAGE TANKS SECTIONS AND DETAILS
M-5	TRUCK LOADING FACILITY AND PUMP STATION SECTIONS, DETAILS AND SCHEDULE
M-6	MISCELLANEOUS DETAILS
M-7	MISCELLANEOUS DETAILS
M-8	EXISTING LEACHATE PUMP STATION DEMOLITION PLAN
E-1	LEACHATE STORAGE TANKS, PUMP STATION AND LIFT STATION ELECTRICAL PLAN
S-1	GENERAL NOTES
S-2	TRUCK LOADING FACILITY AND PUMP STATION PLAN, SECTIONS AND DETAILS

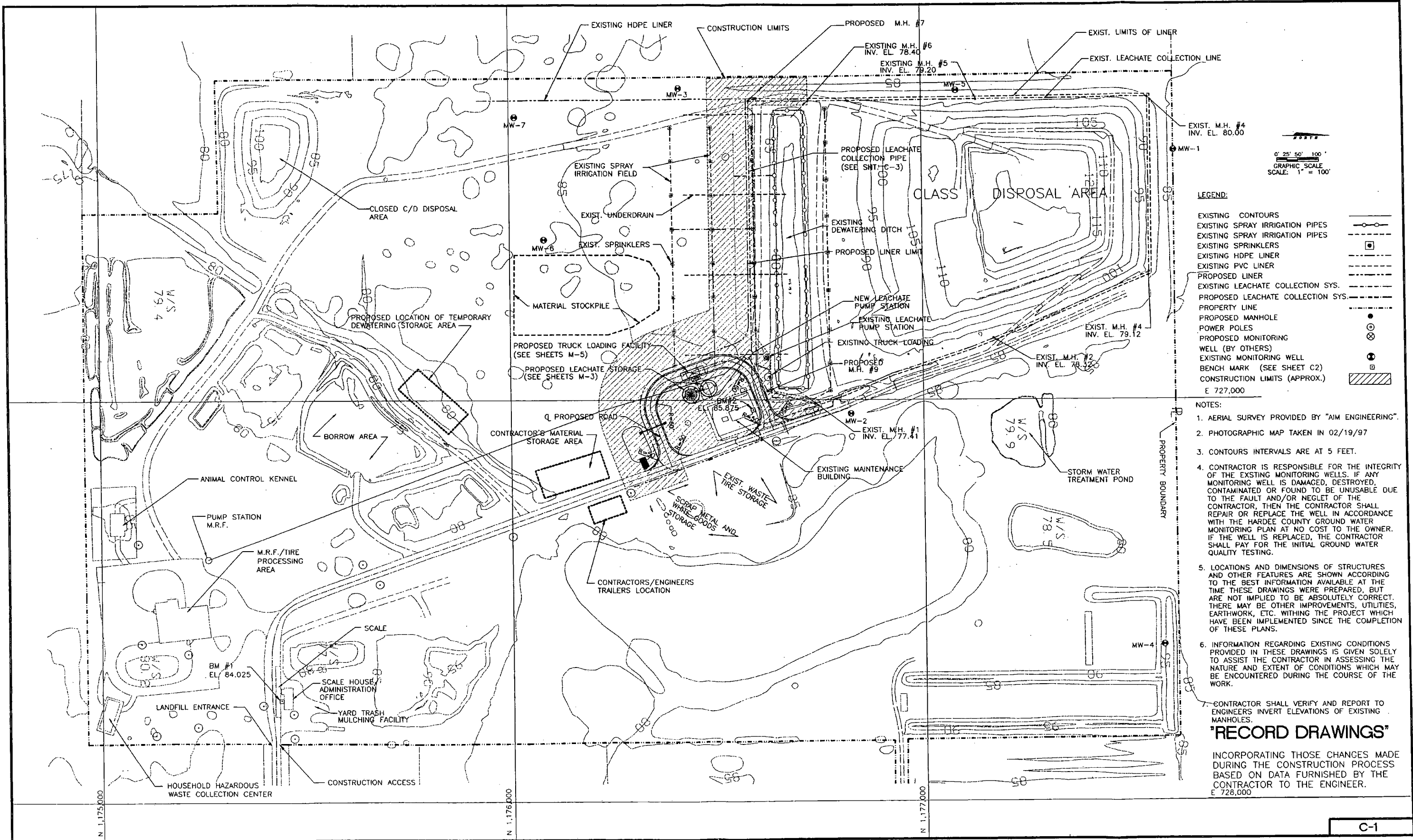
PREPARED BY



POST, BUCKLEY, SCHUH & JERNIGAN INC.
ENGINEERING - PLANNING - ARCHITECTURE

"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE
DURING THE CONSTRUCTION PROCESS
BASED ON DATA FURNISHED BY THE
CONTRACTOR TO THE ENGINEER.



- LEGEND:**
- EXISTING CONTOURS
 - EXISTING SPRAY IRRIGATION PIPES
 - EXISTING SPRAY IRRIGATION PIPES
 - EXISTING SPRINKLERS
 - EXISTING HDPE LINER
 - EXISTING PVC LINER
 - PROPOSED LINER
 - EXISTING LEACHATE COLLECTION SYS.
 - PROPOSED LEACHATE COLLECTION SYS.
 - PROPERTY LINE
 - PROPOSED MANHOLE
 - POWER POLES
 - PROPOSED MONITORING WELL (BY OTHERS)
 - EXISTING MONITORING WELL
 - BENCH MARK (SEE SHEET C2)
 - CONSTRUCTION LIMITS (APPROX.)

- NOTES:**
1. AERIAL SURVEY PROVIDED BY "AIM ENGINEERING".
 2. PHOTOGRAPHIC MAP TAKEN IN 02/19/97
 3. CONTOURS INTERVALS ARE AT 5 FEET.
 4. CONTRACTOR IS RESPONSIBLE FOR THE INTEGRITY OF THE EXISTING MONITORING WELLS. IF ANY MONITORING WELL IS DAMAGED, DESTROYED, CONTAMINATED OR FOUND TO BE UNUSABLE DUE TO THE FAULT AND/OR NEGLIGENCE OF THE CONTRACTOR, THEN THE CONTRACTOR SHALL REPAIR OR REPLACE THE WELL IN ACCORDANCE WITH THE HARDEE COUNTY GROUND WATER MONITORING PLAN AT NO COST TO THE OWNER. IF THE WELL IS REPLACED, THE CONTRACTOR SHALL PAY FOR THE INITIAL GROUND WATER QUALITY TESTING.
 5. LOCATIONS AND DIMENSIONS OF STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME THESE DRAWINGS WERE PREPARED, BUT ARE NOT IMPLIED TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, EARTHWORK, ETC. WITHIN THE PROJECT WHICH HAVE BEEN IMPLEMENTED SINCE THE COMPLETION OF THESE PLANS.
 6. INFORMATION REGARDING EXISTING CONDITIONS PROVIDED IN THESE DRAWINGS IS GIVEN SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK.

CONTRACTOR SHALL VERIFY AND REPORT TO ENGINEERS INVERT ELEVATIONS OF EXISTING MANHOLES.

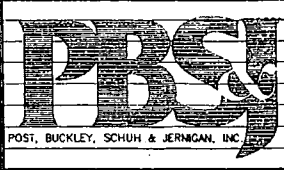
"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

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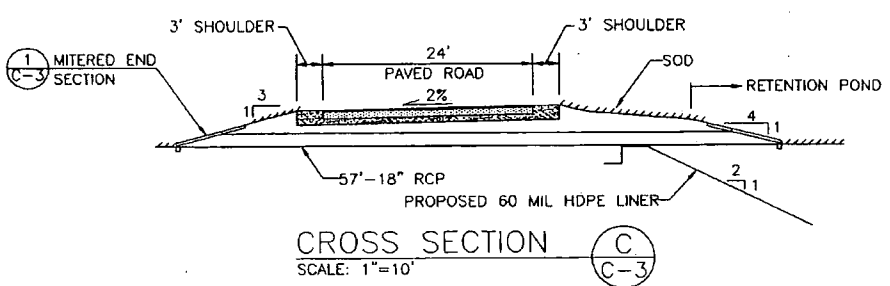
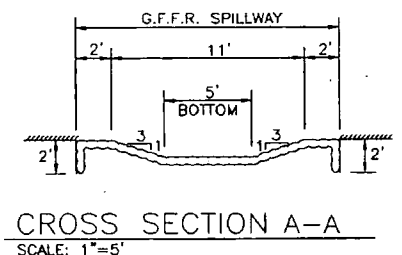
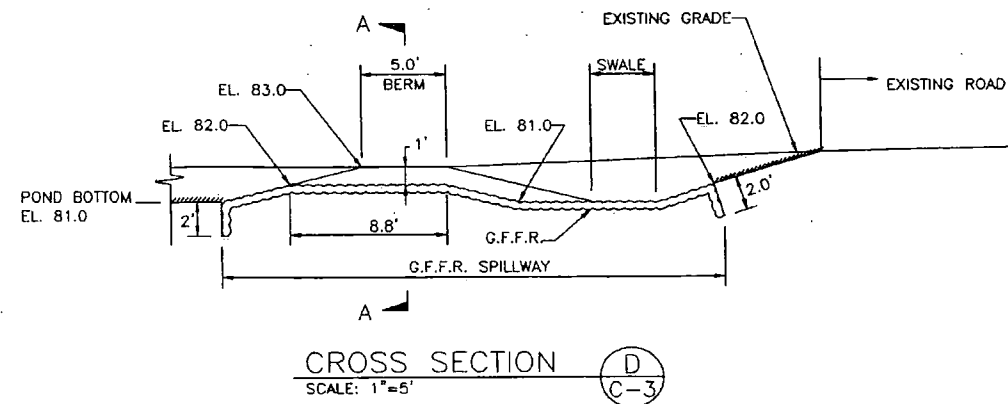
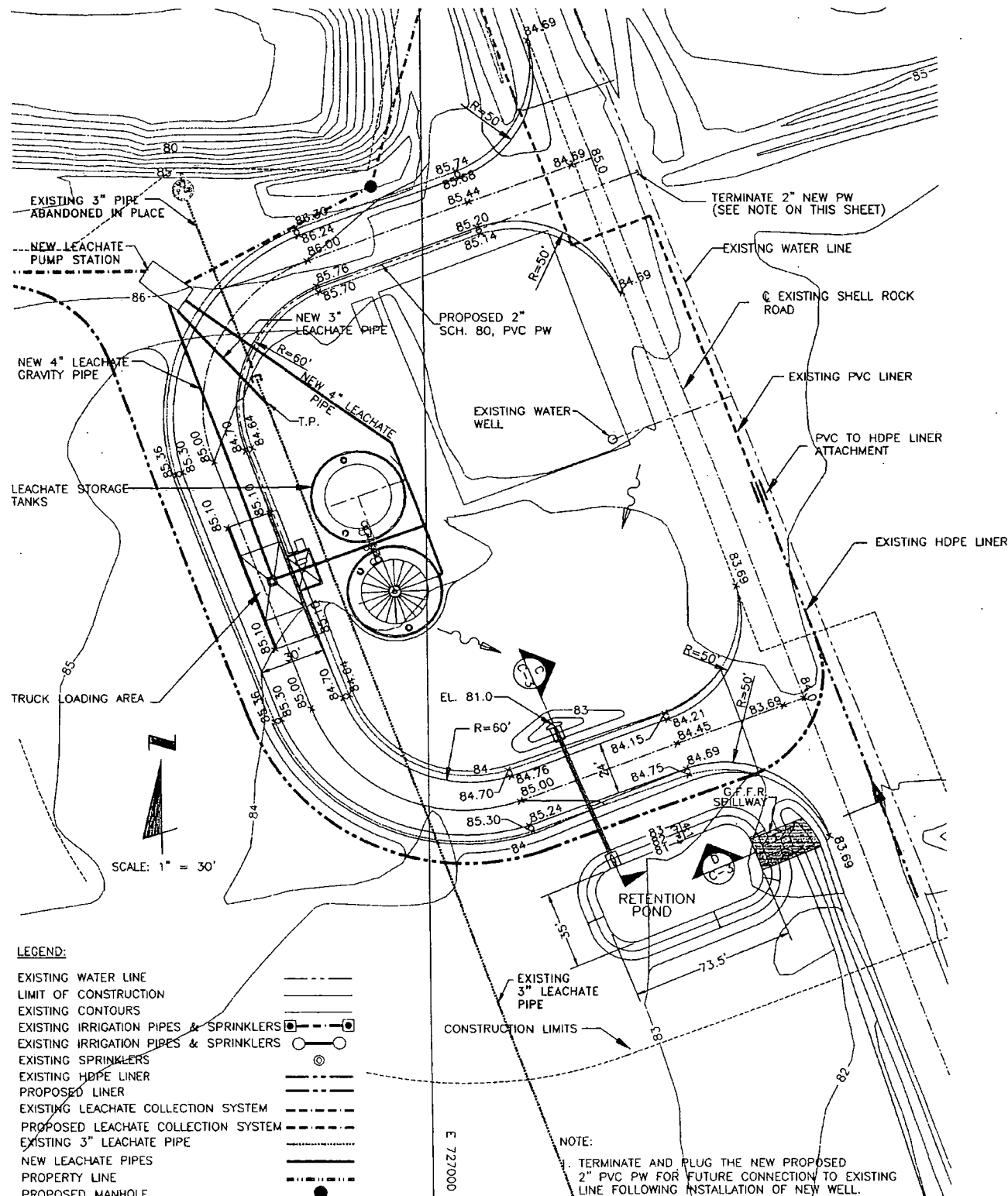
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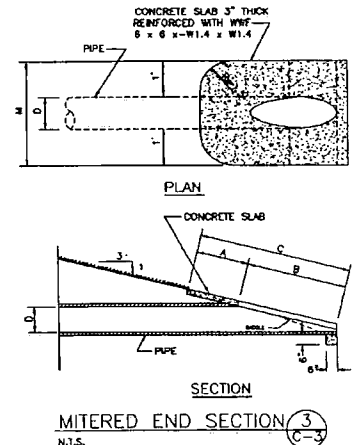
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	BOARD OF COUNTY COMMISSIONERS		CONSTRUCTION PLANS		REVISIONS:		7		DRAWN: RGC
					▲ R.A.I. NO. 1 SEPT. 97		8		DESIGN: RGC_MM
					▲ RECORD DWG. 07/01/00		9		CHECKED: RGC
					3		10		Q.C.: JWF
					4		11		
					5		12		

SHEET 2/16



DIMENSIONS

D	X	A	B	C	E	Scale	Notes
18"	2'-10"	1.87'	2.74'	4.71'	2.58'	4.92'	7.75'
24"	8'-3"	2.08'	3.85'	5.91'	3.58'	5.50'	8.92'
36"	1'-1"	2.25'	8.08'	8.33'	3.38'	8.87'	11.75'



- LEGEND:
- EXISTING WATER LINE
 - LIMIT OF CONSTRUCTION
 - EXISTING CONTOURS
 - EXISTING IRRIGATION PIPES & SPRINKLERS
 - EXISTING IRRIGATION PIPES & SPRINKLERS
 - EXISTING SPRINKLERS
 - EXISTING HDPE LINER
 - PROPOSED LINER
 - EXISTING LEACHATE COLLECTION SYSTEM
 - PROPOSED LEACHATE COLLECTION SYSTEM
 - EXISTING 3" LEACHATE PIPE
 - NEW LEACHATE PIPES
 - PROPERTY LINE
 - PROPOSED MANHOLE
 - POWER POLES
 - PROPOSED MONITORING WELL (BY OTHERS)
 - EXISTING MONITORING WELL
 - SOIL BORING
 - BENCH MARK (BM)

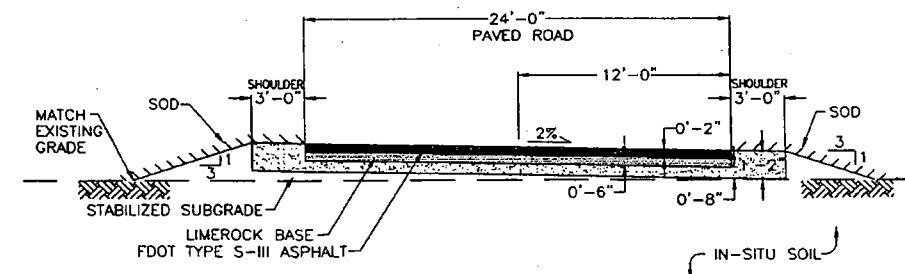
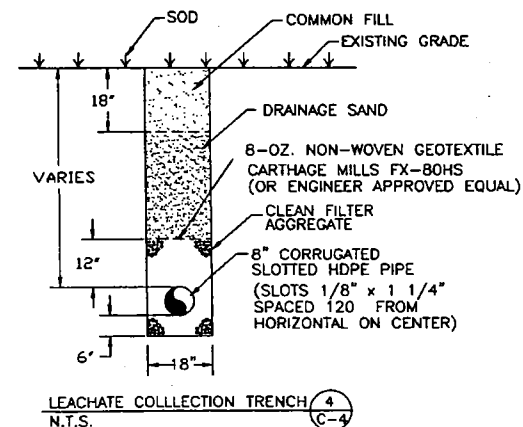
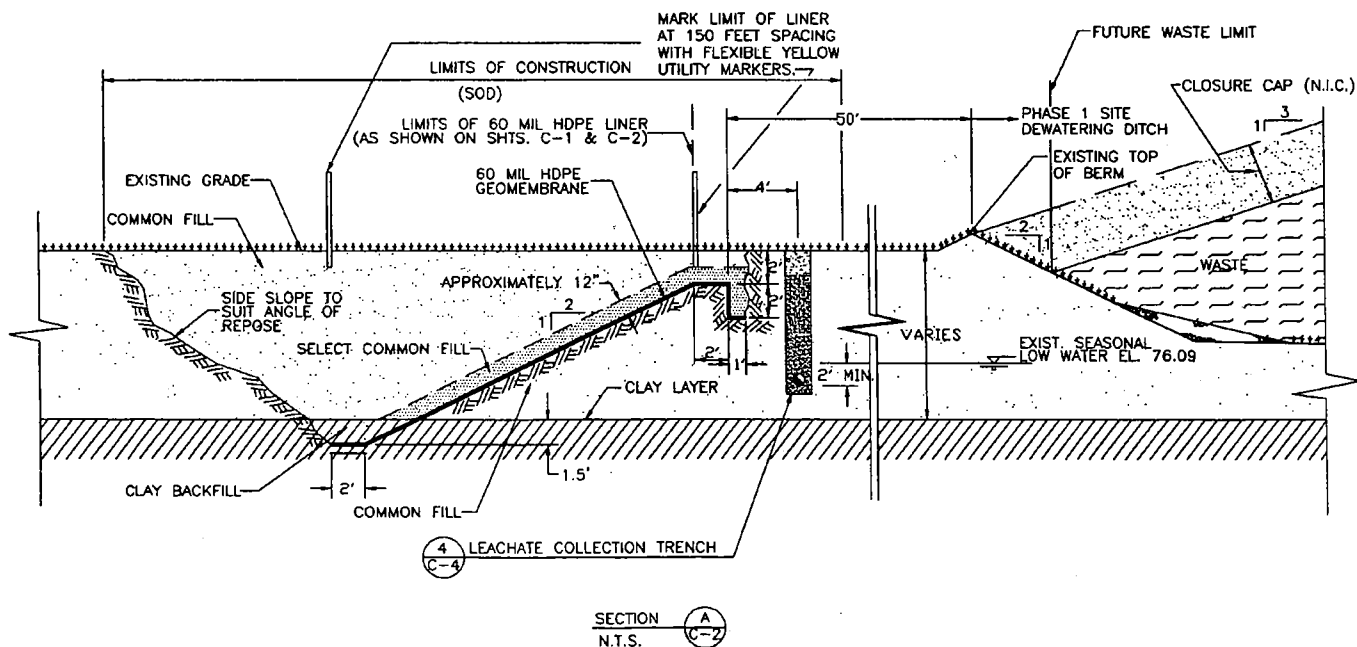
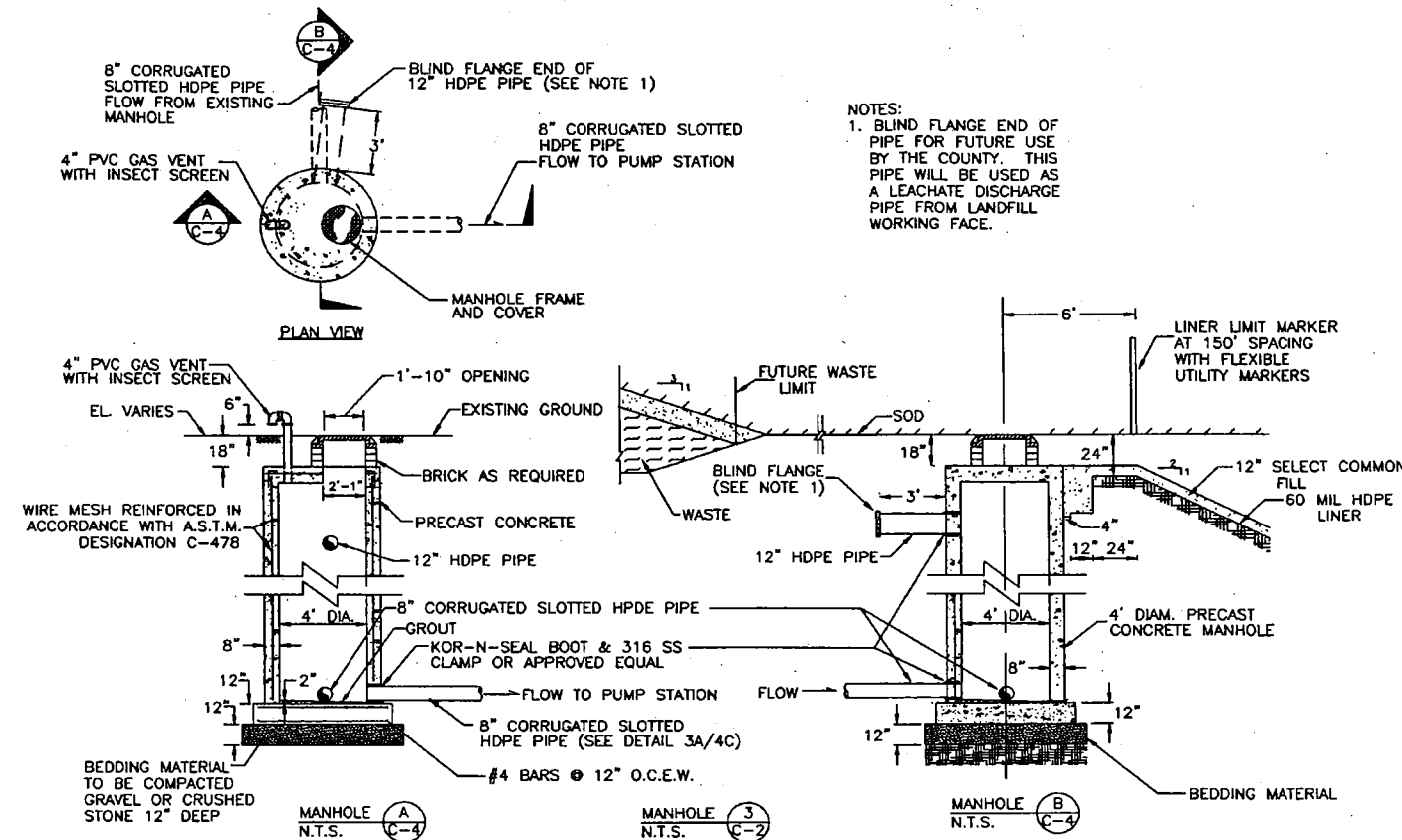
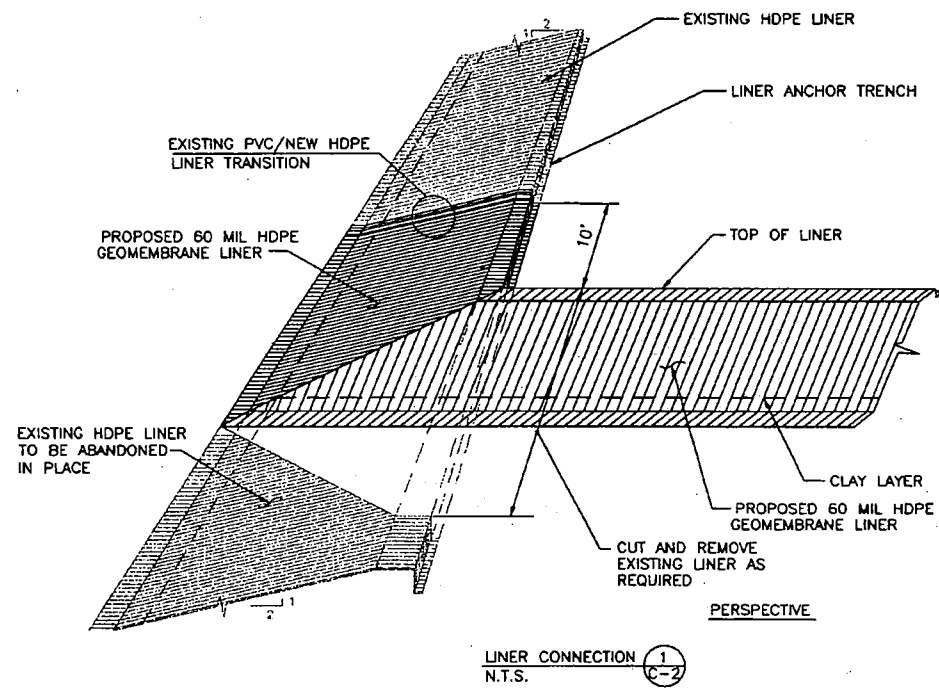
"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

C-3

<p>1560 ORANGE AVENUE SUITE 700 WINTER PARK, FL 32789 TEL. (407) 647-7275 FAX. (407) 647-0624 www.pbsj.com</p>	CLIENT	PROJECT	TASK	ORIGINAL	6	JOB NO. 07-862.35 DRAWN KAL RGC DESIGN KAL CHECKED CEH Q.C. JWE SHEET 4 /
	HARDEE COUNTY	HARDEE COUNTY LANDFILL	LEACHATE STORAGE AREA	REVISIONS:	7	
	BOARD OF COUNTY COMMISSIONERS	LATERAL EXPANSION AND	GRADING AND DRAINAGE	RECORD DWG 07/01/00	8	
		LEACHATE STORAGE TANK FACILITY			9	
				2	10	
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				4	12	
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BOARD OF COUNTY COMMISSIONERS

PROJECT
HARDEE COUNTY REGIONAL LANDFILL
CONSTRUCTION PLANS

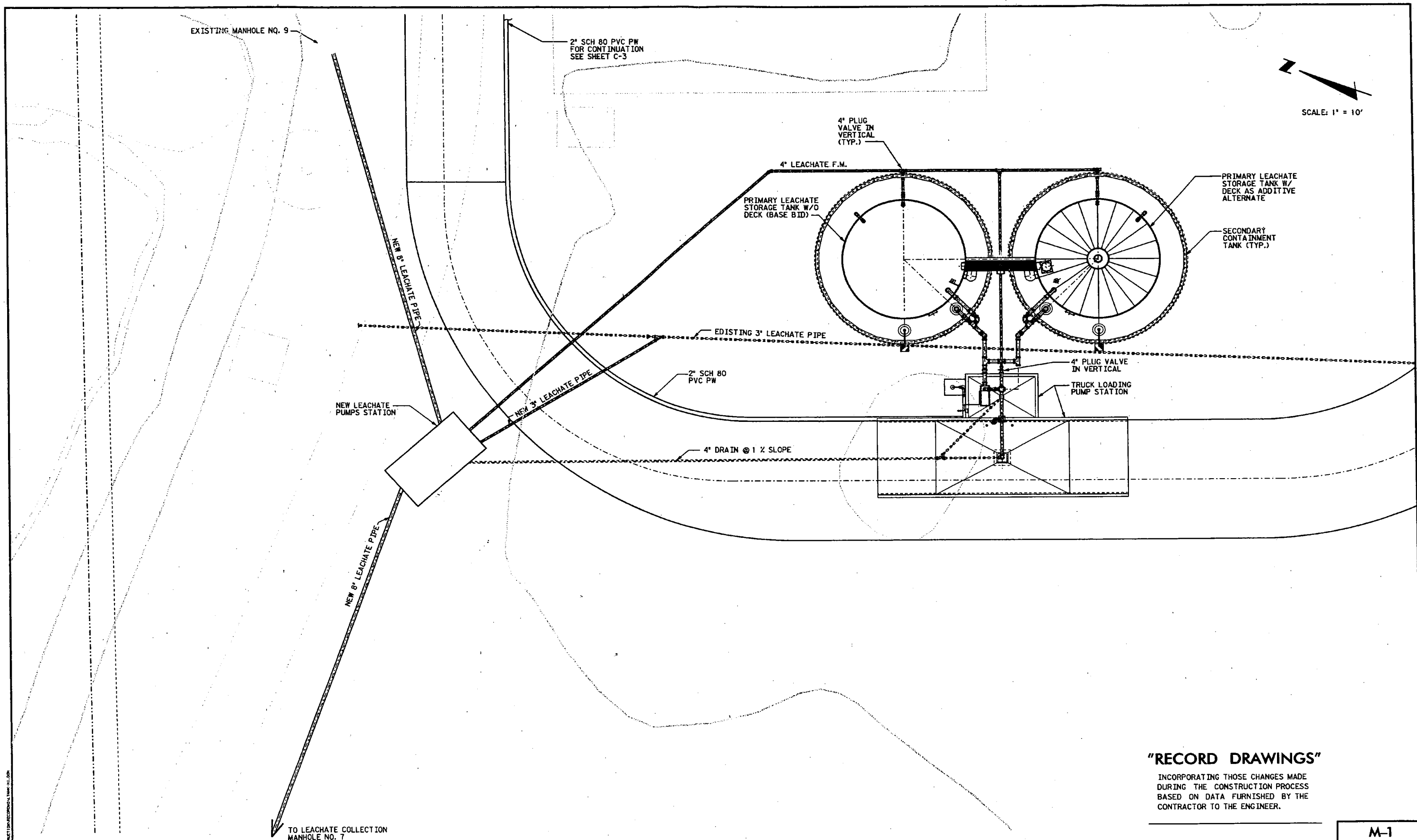
TASK
SECTIONS AND DETAILS

ORIGINAL JUNE 1997
REVISIONS:
A R.A.L. No. 1 Sept 97
A RECORD DWG. 07/01/00
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JOB NO. 007-988-295
DRAWN RGC
DESIGN RGC, MM
CHECKED DED
Q.C. JWF

SHEET 5/16



SCALE: 1" = 10'

"RECORD DRAWINGS"
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M-1

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HARDEE COUNTY
BOARD OF COUNTY COMMISSIONERS

PROJECT
HARDEE COUNTY LANDFILL
LATERAL EXPANSION AND
LEACHATE STORAGE TANK FACILITY

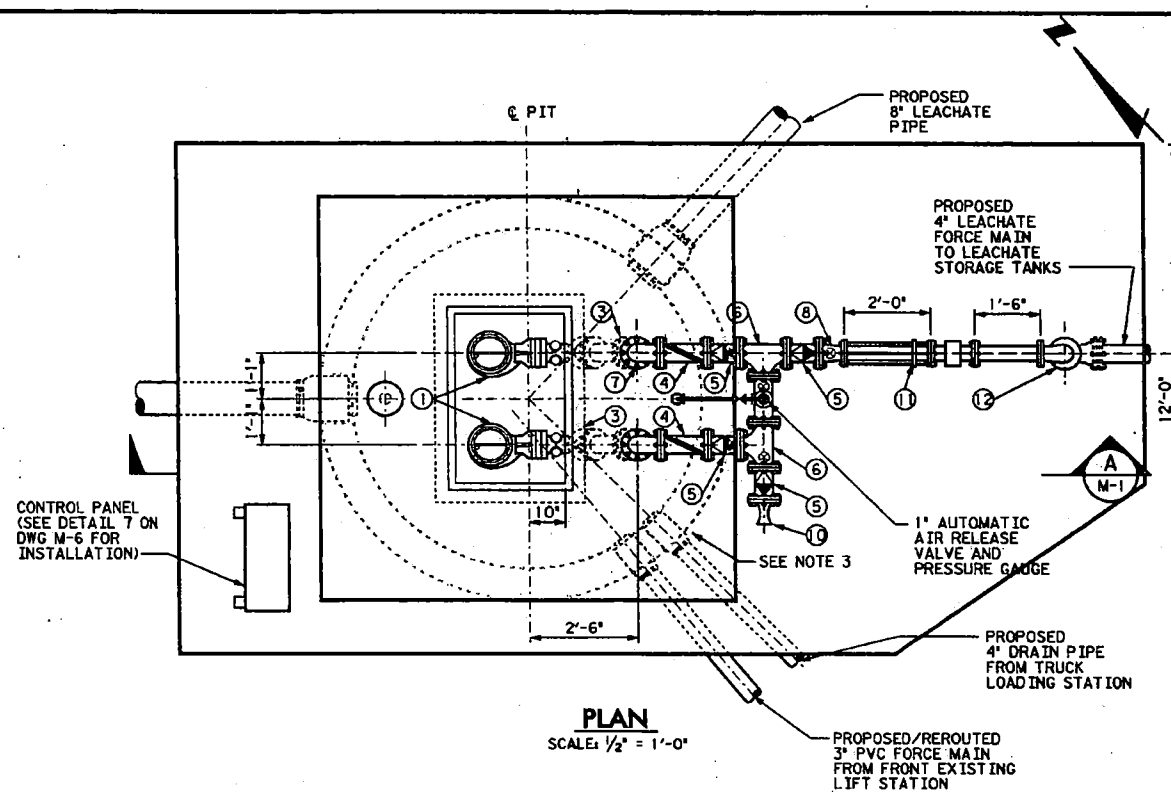
TASK
LEACHATE STORAGE TANKS
AND YARD PIPING PLAN

ORIGINAL FEB. 1999
 REVISIONS:
 RECORD DWG. 07/01/00

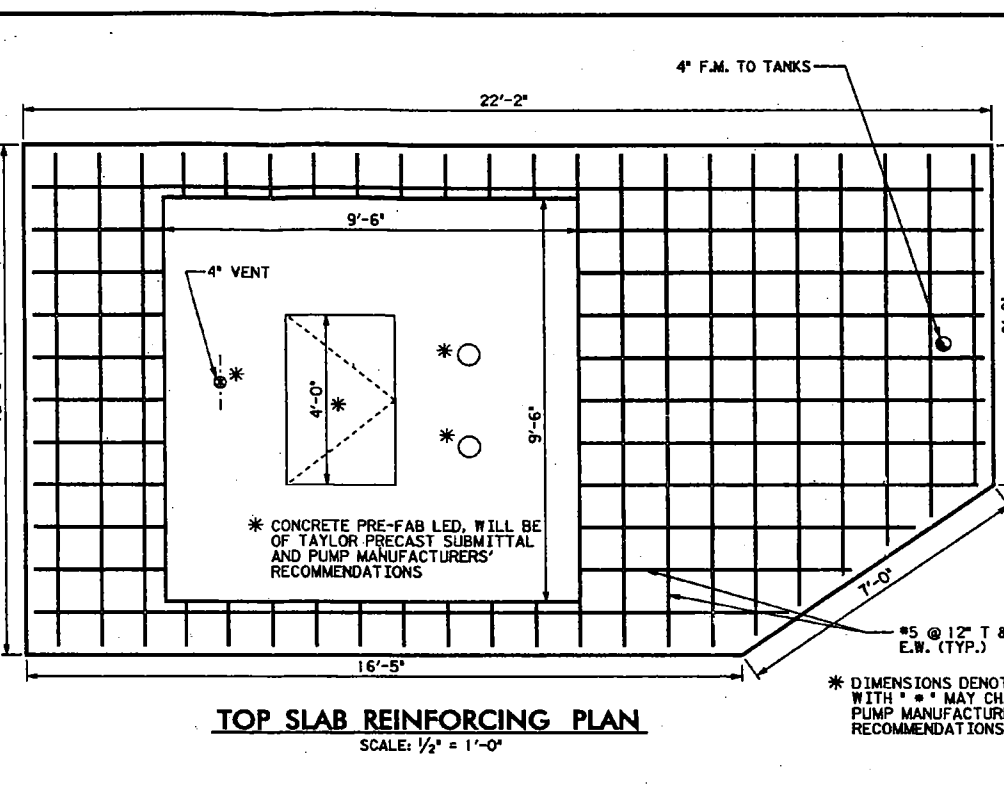
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JOB NO. 07-172.02
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 CHECKED CF
 O.C. DBS
SHEET 6 / 16

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PLAN
SCALE: 1/2" = 1'-0"

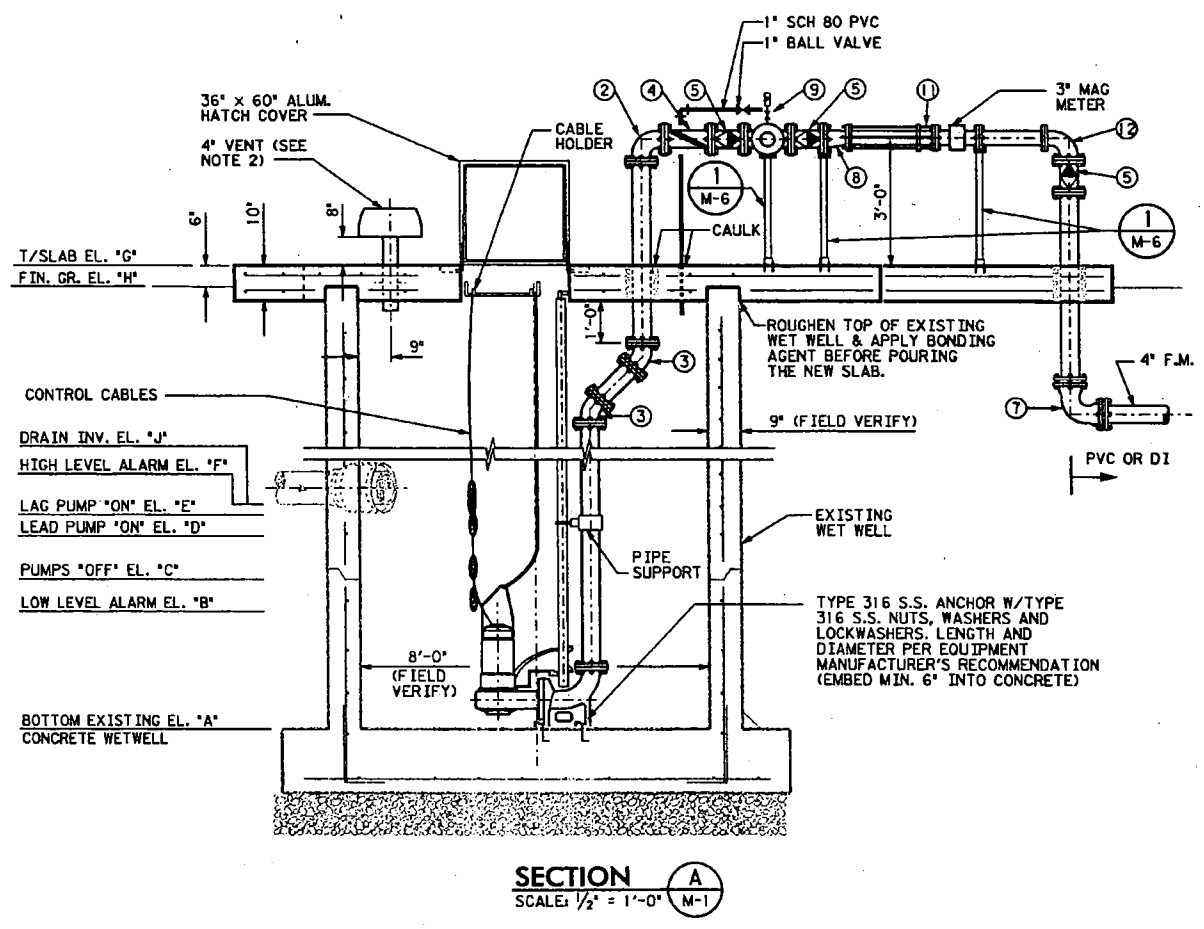


TOP SLAB REINFORCING PLAN
SCALE: 1/2" = 1'-0"

EQUIPMENT AND FITTING SCHEDULE

- 1 SUBMERSIBLE PUMP
- 2 4" 90° BEND, DI (FLG.)
- 3 4" 45° BEND DI (FLG.)
- 4 4" SWING CHECK VALVE, (FLG.)
- 5 4" PLUG VALVE, (FLG.)
- 6 4" TEE, DI (FLG.)
- 7 4" 90° BEND, DI (R.J.)
- 8 4" x 3" ECC. RED. (FLG.)
- 9 PRESSURE GAUGE (FOR DETAIL SEE SHT. M-6)
- 10 4" CAM AND GROOVE ALUM. MALE ADAPTER (FLG.) WITH DUST CAP AND 316SS CHAIN
- 11 4" FLANGED COUPLING ADAPTER WITH RESTRAINING RODS
- 12 4" x 3" BEND, D.I. (FLG.)

- NOTES:**
1. ALL NUTS AND BOLTS FOR FLANGES IN WETWELL SHALL BE TYPE 316 S.S.
 2. VENT PIPE SHALL BE JOSAM MODEL 26700 OR APPROVED EQUAL. VENT SHALL HAVE AN 8" CLEARANCE FROM TOP SLAB OF LIFT STATION.
 3. CORE DRILL NEW PIPE PENETRATIONS AND INSTALL PIPE USING KOR-N-SEAL RUBBER BOOT WITH STAINLESS STEEL HARDWARE.
 4. FOR EXISTING PUMP STATION DEMOLITION PLAN, SEE DWG. M-8.



SECTION
SCALE: 1/2" = 1'-0"

PUMP STATION DATA TABLE		
DESIGNATION	P.S. NO.2	REMARKS
ELEVATION "A"	69.00	
ELEVATION "B"	71.75	
ELEVATION "C"	71.00	
ELEVATION "D"	72.00	
ELEVATION "E"	72.50	
ELEVATION "F"	72.75	
ELEVATION "G"	85.50	
ELEVATION "H"	85.00	
ELEVATION "J" LOWEST DRAIN INV. EL. (8" DRAIN)	72.75	
PUMP STATION, PIPING VALVES AND FITTINGS SIZE & MATERIALS	4" D.I.	
FM. SIZE	4"	
PRIMARY DUTY POINT	130 gpm @ 32 FT.	
SECONDARY DUTY POINT	300 gpm @ 23 FT.	
SHUT OFF HEAD	42 FT.	
INFLUENT DRAIN SIZE	4"/8"	

"RECORD DRAWINGS"
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

M-2

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BOARD OF COUNTY COMMISSIONERS

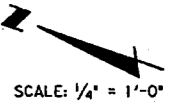
PROJECT
HARDEE COUNTY LANDFILL
LATERAL EXPANSION AND
LEACHATE STORAGE TANK FACILITY

TASK
SUBMERSIBLE LEACHATE PUMP STATION
PLAN, SECTION AND DETAILS

ORIGINAL FEB. 1999
REVISIONS:
1 RECORD DWG. 07/01/00
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JOB NO. 07-172.02
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DESIGN RS
CHECKED CF
G.C. DBS
SHEET 7/16

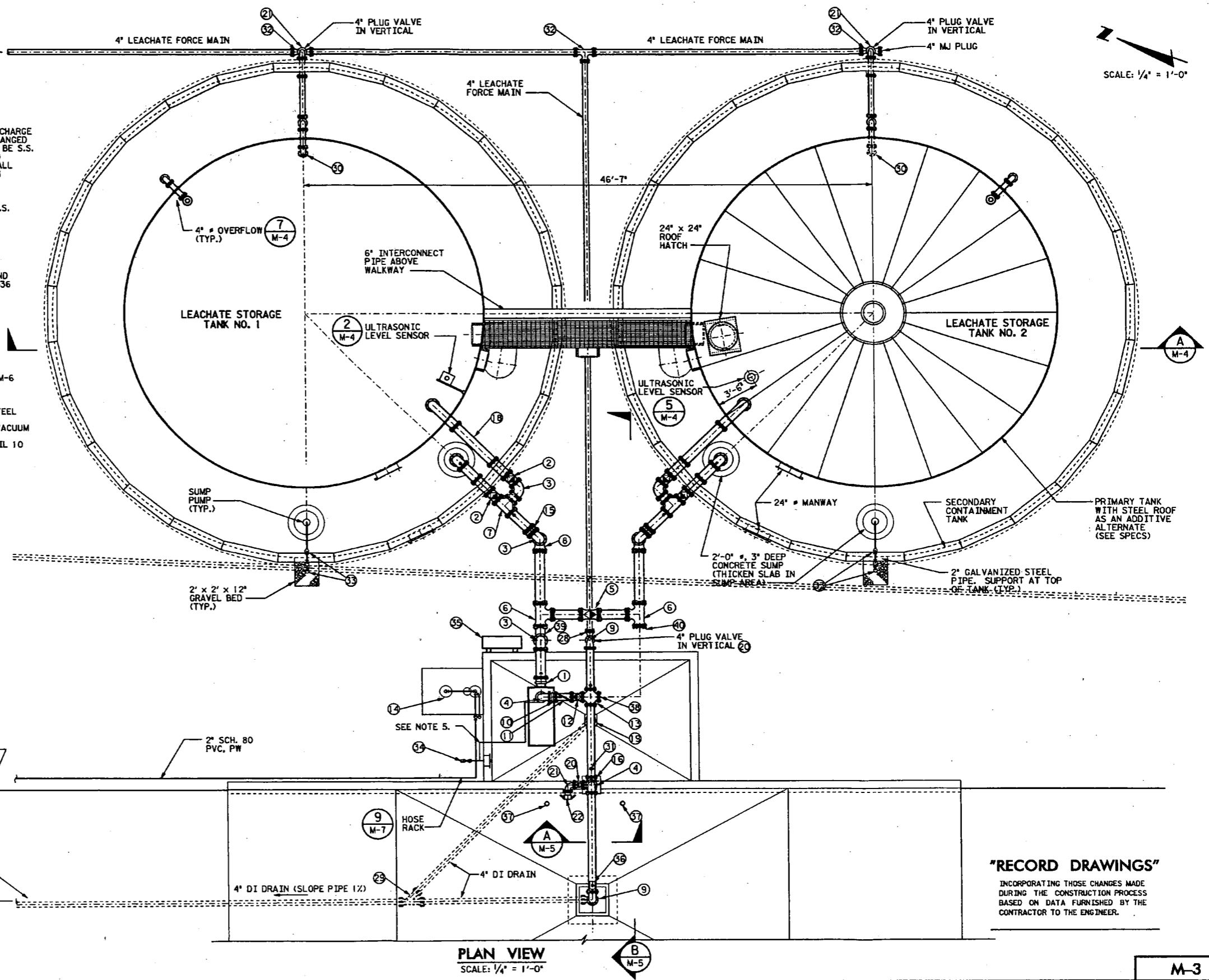


EQUIPMENT AND FITTING SCHEDULE

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. 8" x 6" FLEXIBLE EXPANSION ECCENTRIC REDUCER (FLG.) (TOP LEVEL) 2. 8" PLUG VALVE W/GEAR OPERATOR & HANDWHEEL (FLG.) 3. 8" 90° BEND DI (FLG.) 4. 6" 90° BEND DI (FLG.) 5. 8" PLUG VALVE (RJ) W/VALVE BOX SEE SHT. M-6 FOR DETAIL 6. 8" TEE DI (RJ) 7. 8" TEE DI (FLG.) 8. 8" 90° BEND DI (RJ) 9. 6" x 4" 90° BEND DI (FLG.) 10. 6" FLEXIBLE EXPANSION JOINT (FLG.) WITH RESTRAINING RODS. 11. 6" SWING CHECK VALVE (FLG.) 12. 6" PLUG VALVE W/GEAR OPERATOR & HANDWHEEL (FLG.) 13. 6" CROSS DI (FLG.) 14. EMERGENCY EYEWASH & SHOWER, SEE SHT. M-6 FOR DETAILS 15. 8" FLEX EXPANSION JOINT W/ RESTRAINING ROD 16. 6" 90° BASE BEND DI (FLG.) 17. 6" x 4" TEE DI (FLG.) 18. 8" 90° FLG. x FLEAR BEND DI 19. 4" JOSAM FLOOR DRAIN SERIES 32200 WITH BWV JOSAM SERIES 67100A, GALVANIZED, NO HUB. 20. 4" PLUG VALVE W/LEVER OPERATOR (FLG.) 21. 4" 90° BEND DI (FLG.) 22. 4" ALUMINUM CAM & GROOVE MALE ADAPTER (FLG.) W/DUST CAP AND CHAIN | <ol style="list-style-type: none"> 23. 8' LONG, 4" DIA. RUBBER DISCHARGE HOSE WITH AN INTERGRAL FLANGED END, W/ NUTS AND BOLTS TO BE S.S. HOSE SHALL BE RATED @ 100 PSI AND HAVE A MINIMUM WALL THICKNESS OF 0.39". AMAZON RUBBER AND HOSE COMPANY OR APPROVED EQUAL. 24. 6" SWIVEL JOINT (FLG.) W/S.S. FLANGE, NUT & BOLTS, SEE SHT. M-5 FOR TRAVEL LIMIT STOP DETAIL. 25. PIPE FLANGE SUPPORT, SEE SHT. M-6 FOR DETAIL. 26. HEAVY DUTY INLET FRAME AND GRATE (NEENAH CAT. NO. R3336 OR APPROVED EQUAL 27. 4" DI WALL PIPE (PE) 28. 4" 90° BEND DI (RJ) 29. 4" WYE DI (MJ) 30. 4" 45° BEND DI (FLG.) 31. PRESSURE GAUGE, SEE DWG. M-6 32. 4" TEE DI (RJ) 33. 2" 90° BEND GALVANIZED STEEL 34. 3/4" BENT HOSE VALVE W/VACUUM BREAKER (ACORN 8126 OR APPROVED EQUAL) SEE DETAIL 10 ON DWG M-7 35. CONTROL PANEL RACK, SEE SHEET M-6 FOR DETAIL 36. PUSH BUTTON ON/OFF, SEE ELECTRICAL DWGS. FOR DETAILS 37. GUARD POST, TYP., SEE SHT. M-6 FOR DETAILS 38. 6" BLIND FLANGE 39. 8" 90° BEND MJ x PE DI 40. 8" MJ PLUG |
|---|---|

NOTES

1. ALL ABOVE GROUND PIPING SHALL BE FLANGED DI.
2. BELOW GROUND PRESSURE PIPING UNLESS OTHERWISE NOTED SHALL BE EITHER DI OR PVC.
3. ALL UNDERGROUND PRESSURE PIPING SHALL BE RESTRAINED TO RESIST THE SYSTEM THRUST.
4. AN ALTERNATE BID ITEM IS BEING SOLICITED FOR GLASS FUSED TO STEEL TANKS IN LIEU OF FACTORY PAINTED TANKS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. SEAL WATER WITH REGULATOR GAUGE AND STRAINER



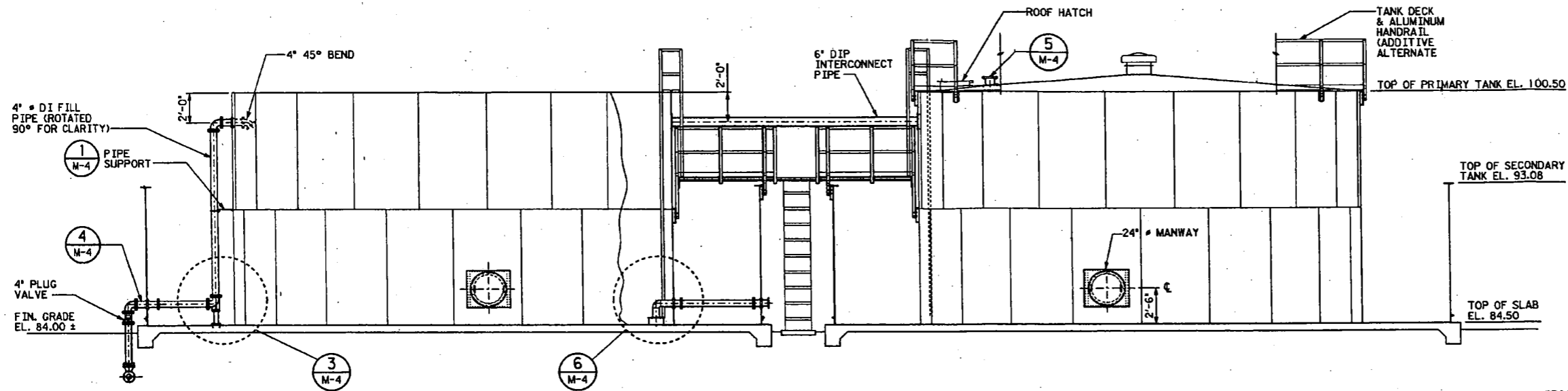
PLAN VIEW
SCALE: 1/4" = 1'-0"

"RECORD DRAWINGS"
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

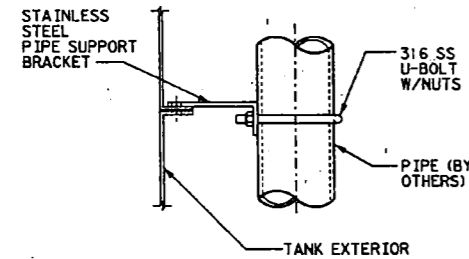
M-3

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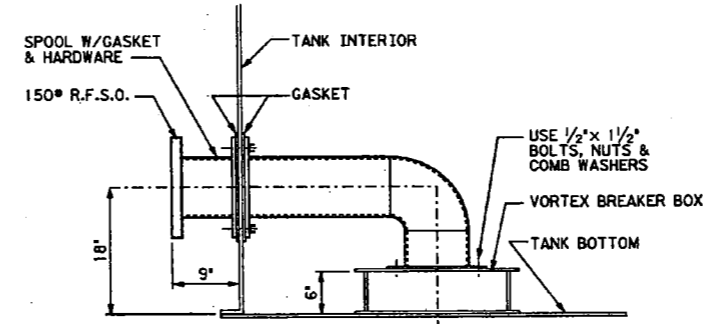
CLIENT HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS	PROJECT HARDEE COUNTY LANDFILL LATERAL EXPANSION AND LEACHATE STORAGE TANK FACILITY	TASK LEACHATE STORAGE TANKS AND TRUCK LOADING PUMP STATION PLAN	ORIGINAL FEB. 1999 REVISIONS: ▲ RECORD DWG. 07/01/00	6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____	JOB NO. 07-172.02 DRAWN OV DESIGN RS CHECKED CF G.C. DBS SHEET 8 / 16
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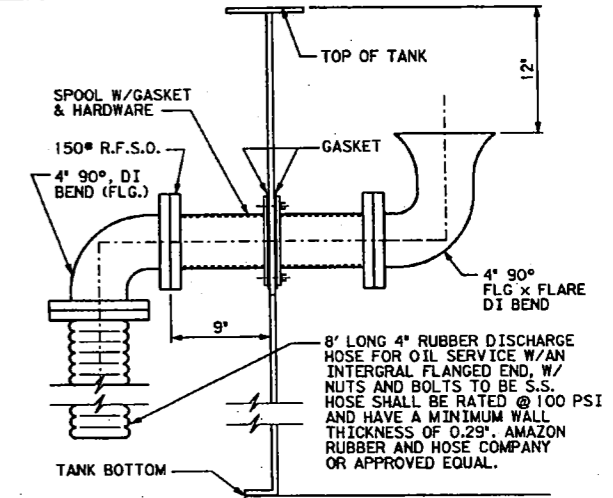
SECTION A
SCALE: 1/4" = 1'-0"
M-3



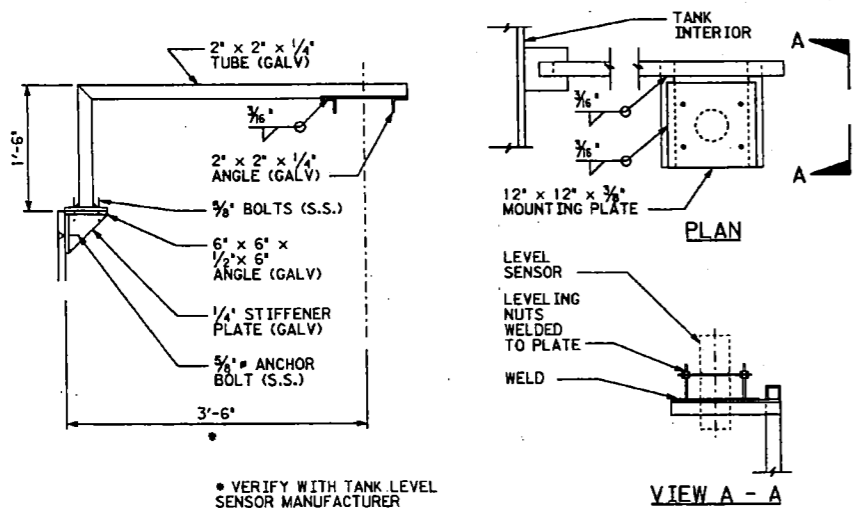
PIPE SUPPORT BRACKET DETAIL 1
SCALE: 1 1/2" = 1'-0"
M-4



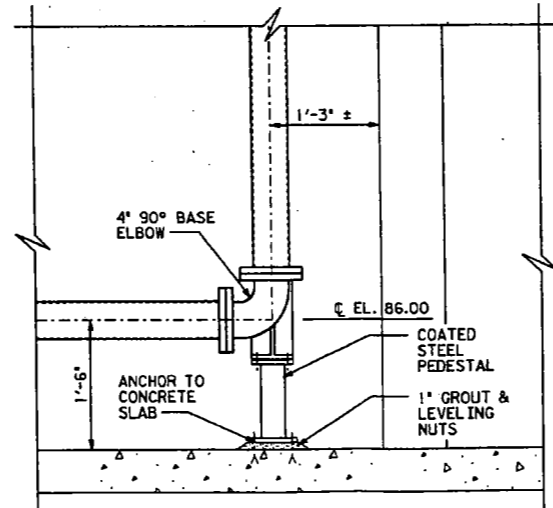
SUCTION LINE DETAIL 6
SCALE: 1" = 1'-0"
M-4



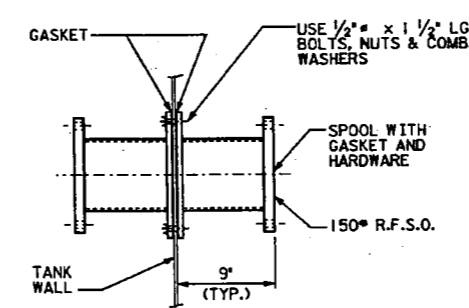
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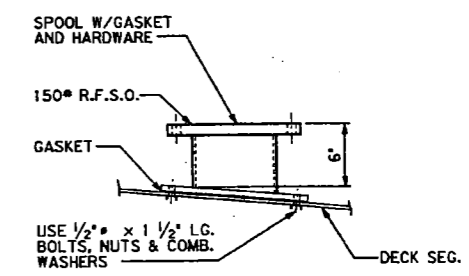
ULTRASONIC LEVEL SENSOR MOUNTING DETAIL FOR OPEN TANK 2
SCALE: 1" = 1'-0"
M-3



DETAIL 3
SCALE: 1" = 1'-0"
M-4



DOUBLE NOZZLE ON SHELL DETAIL 4
SCALE: 1 1/2" = 1'-0"
M-4



ULTRASONIC LEVEL SENSOR DECK MOUNTING NOZZLE 5
SCALE: 1 1/2" = 1'-0"
M-4

"RECORD DRAWINGS"
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.



CLIENT
HARDEE COUNTY
BOARD OF COUNTY COMMISSIONERS

PROJECT
HARDEE COUNTY LANDFILL
LATERAL EXPANSION AND
LEACHATE STORAGE TANK FACILITY

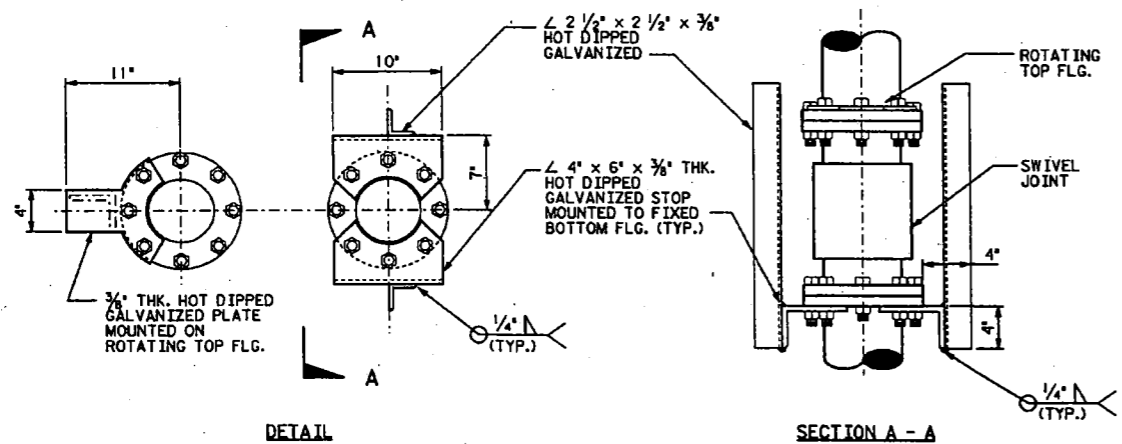
TASK
LEACHATE STORAGE TANKS
SECTIONS AND DETAILS

ORIGINAL FEB. 1999
REVISIONS:
▲ RECORD DWG 07/01/00
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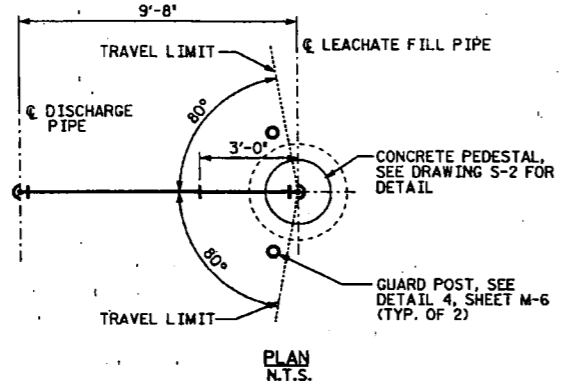
JOB NO. 07-172.02
DRAWN O.V.
DESIGN R.S.
CHECKED C.F.
C.C. DBS
SHEET 9/16

M-4



DETAIL

SECTION A - A

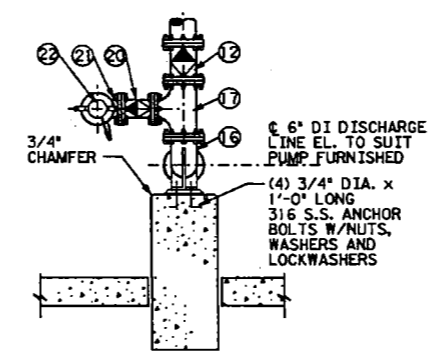


PLAN
N.T.S.

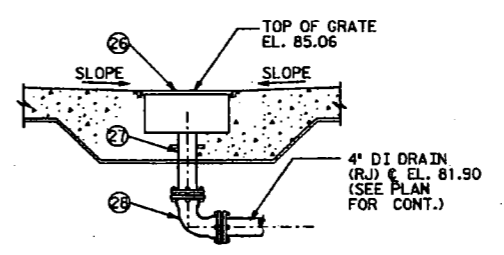
LEACHATE FILL PIPE TRAVEL LIMIT STOP DETAIL AND PLAN
SCALE: 1 1/2" = 1'-0"

EQUIPMENT AND FITTING SCHEDULE

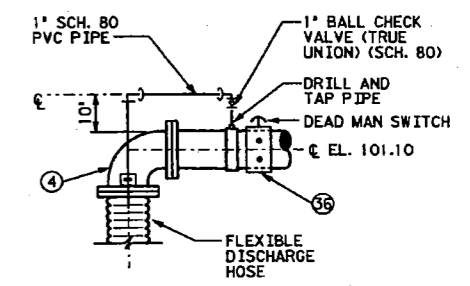
- | | | |
|---|---|--|
| <ol style="list-style-type: none"> 1. 8" x 6" FLEXIBLE EXPANSION ECCENTRIC REDUCER (FLG.) (TOP LEVEL) 2. 8" PLUG VALVE W/GEAR OPERATOR & HANDWHEEL (FLG.) 3. 8" 90° BEND DI (FLG.) 4. 6" 90° BEND DI (FLG.) 5. 8" PLUG VALVE (RJ) W/VALVE BOX SEE SHT. M-6 FOR DETAIL 6. 8" TEE DI (RJ) 7. 8" TEE DI (FLG.) 8. 8" 90° BEND DI (RJ) 9. 6" x 4" 90° BEND DI (FLG.) 10. 6" FLEXIBLE EXPANSION JOINT (FLG.) WITH RESTRAINING RODS. 11. 6" SWING CHECK VALVE (FLG.) 12. 6" PLUG VALVE W/GEAR OPERATOR & HANDWHEEL (FLG.) 13. 6" CROSS DI (FLG.) 14. EMERGENCY EYEWASH & SHOWER, SEE SHT. M-6 FOR DETAILS | <ol style="list-style-type: none"> 15. 8" FLEX EXPANSION JOINT W/ RESTRAINING ROD 16. 6" 90° BASE BEND DI (FLG.) 17. 6" x 4" TEE DI (FLG.) 18. 8" 90° FLG x FLARE BEND DI. 19. 4" JOSAM FLOOR DRAIN SERIES 32200 WITH BWV JOSAM SERIES 67100A, GALVANIZED, NO HUB. 20. 4" PLUG VALVE W/LEVER OPERATOR (FLG.) 21. 4" 90° BEND DI (FLG.) 22. 4" ALUMINUM CAM & GROOVE MALE ADAPTER (FLG.) W/DUST CAP AND ST. STL. CHAIN 23. 8" LONG 4" RUBBER DISCHARGE HOSE FOR OIL SERVICE W/AN INTEGRAL FLANGED END, W/ NUTS AND BOLTS TO BE S.S. HOSE SHALL BE RATED @ 100 PSI AND HAVE A MINIMUM WALL THICKNESS OF 0.29". AMAZON RUBBER AND HOSE COMPANY OR APPROVED EQUAL. 24. 6" SWIVEL JOINT (FLG.) W/S.S. FLANGE, NUT & BOLTS, SEE SHT. M-5 FOR TRAVEL LIMIT STOP DETAIL. 25. PIPE FLANGE SUPPORT, SEE SHT. M-6 FOR DETAIL. | <ol style="list-style-type: none"> 26. HEAVY DUTY INLET FRAME AND GRATE (NEENAH CAT. NO. R3336 OR APPROVED EQUAL) 27. 4" DI WALL PIPE (PE) 28. 4" 90° BEND DI (MJ) 29. 4" WYE DI (MJ) 30. 4" 45° BEND DI (FLG) 31. PRESSURE GAUGE 32. 4" TEE DI (MJ) 33. 2" 90° BEND GALVANIZED STEEL 34. 3/4" BENT HOSE VALVE W/VACUUM BREAKER (ACORN 8126 OR APPROVED EQUAL) SEE DETAIL 10 ON DWG M-7 35. CONTROL PANEL RACK, SEE SHEET M-6 FOR DETAIL 36. PUSH BUTTON ON/OFF, SEE ELECTRICAL DWGS. FOR DETAILS 37. GUARD POST, TYP., SEE SHT. M-6 FOR DETAILS 38. 6" BLIND FLANGE 39. 8" 90° BEND MJ x PE DI. 40. 8" MJ PLUG |
|---|---|--|



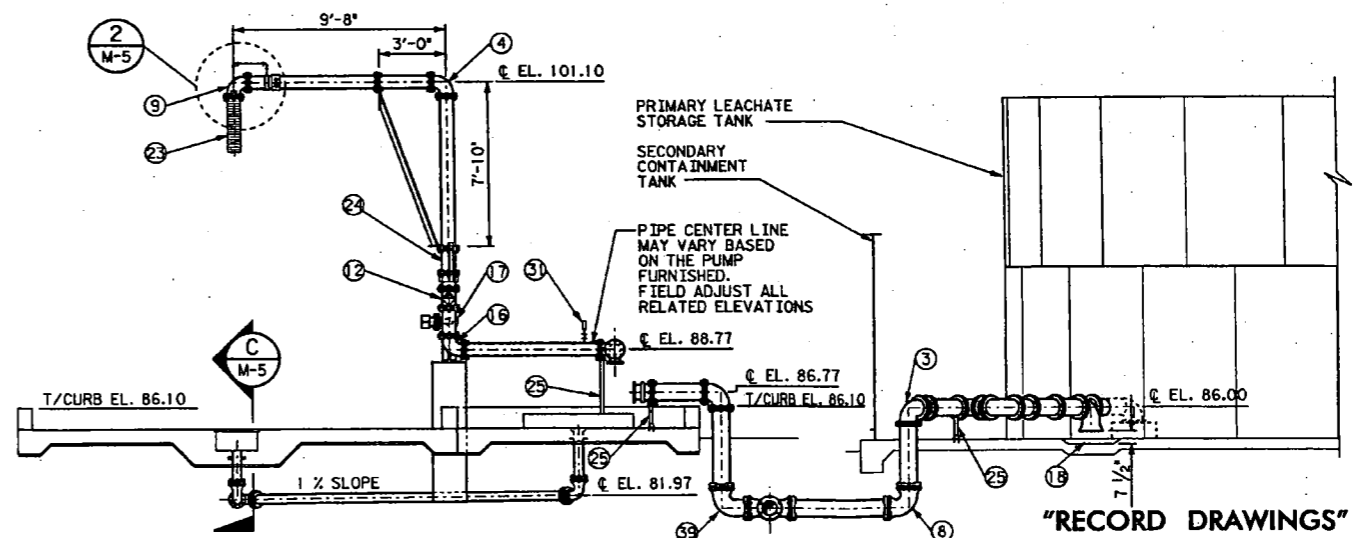
SECTION A
SCALE: 1/2" = 1'-0"



SECTION C
SCALE: 1/2" = 1'-0"



DETAIL 2
SCALE: N.T.S.



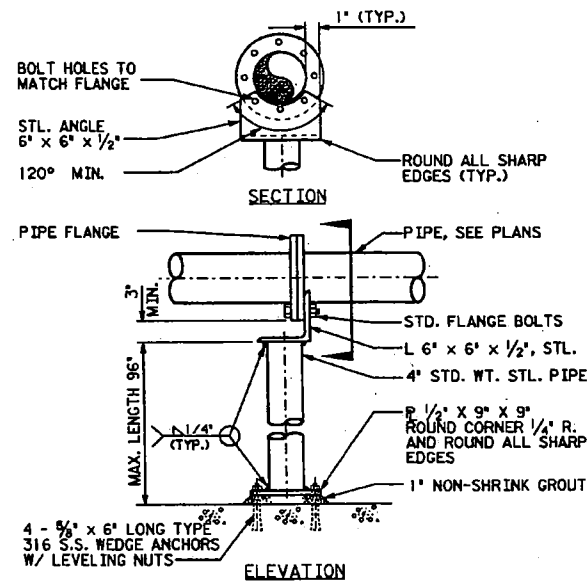
SECTION B
SCALE: 1/4" = 1'-0"

"RECORD DRAWINGS"
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

M-5

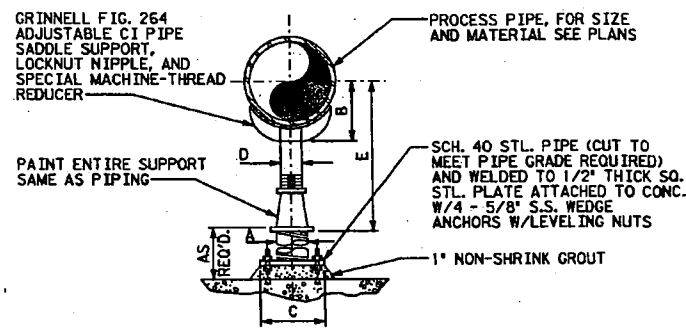


CLIENT:	PROJECT:	TASK:	ORIGINAL FEB. 1999	6. _____	JOB NO. 07-172.02
HARDEE COUNTY	HARDEE COUNTY LANDFILL	TRUCK LOADING FACILITY	REVISIONS:	7. _____	
BOARD OF COUNTY COMMISSIONERS	LATERAL EXPANSION AND	AND PUMP STATION	1. RECORD DWG 07/01/00	8. _____	DESIGN RS
	LEACHATE STORAGE TANK FACILITY	SECTIONS, DETAILS AND SCHEDULE	2. _____	9. _____	CHECKED CF
			3. _____	10. _____	Q.C. DBS
			4. _____	11. _____	
			5. _____	12. _____	SHEET 10/16



- NOTE:**
- HOT DIP GALVANIZE ENTIRE SUPPORT AFTER FABRICATION.
 - ALL BOLT HOLES SHALL BE SHOP DRILLED PRIOR TO GALVANIZING.
 - PIPE SUPPORT SUITABLE FOR PIPE SIZES FROM 3\"/>

PIPE FLANGE SUPPORT DETAIL (1)
SCALE: N.T.S.

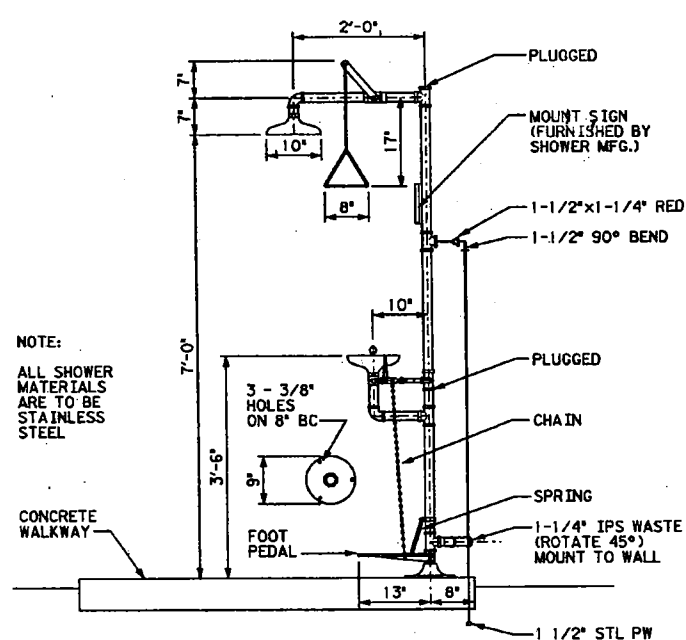


- NOTES:**
- PROVIDE INSULATION PROTECTION SHIELD, SIMILAR TO GRINNELL FIG. 167, WHEN PIPING IS INSULATED.
 - PROVIDE 1/4\"/>

PIPE SIZE	A	B	C	D	E
2 1/2	2 1/2	3 1/2	9	1 1/2	8 13/16
3	2 1/2	3 3/4	9	1 1/2	8 13/16
3 1/2	2 1/2	4	9	1 1/2	8 13/16
4	3	4 1/4	9	2 1/2	9 1/4
5	3	4 1/2	9	2 1/2	10 1 1/4
6	3	5 1/2	9	2 1/2	10 1 1/4
8	3	6 1/2	9	2 1/2	11 1 1/4
10	3	8 1/2	9	2 1/2	13 1/4
12	3	9 3/4	9	2 1/2	15 1 3/8
14	4	10 3/4	9	3	16 1/4
16	4	12 3/4	9	3	17 3/4
18	6	13 1/2	11	3 1/2	19 1/2
20	6	15 1/2	11	3 1/2	21 2 1/2
24	6	17 1/2	11	4	23 3/4

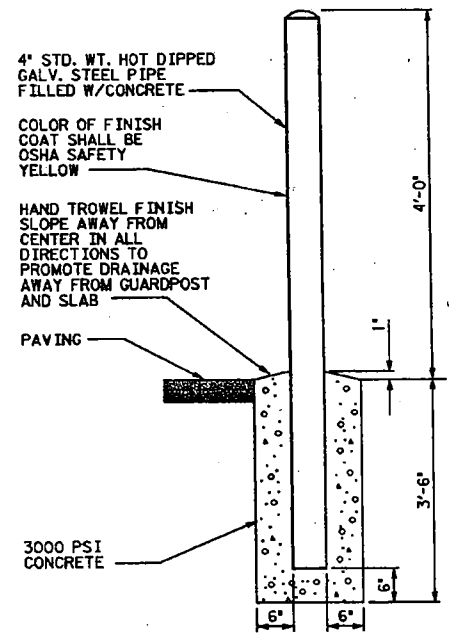
(DIMENSIONS IN INCHES)

PIPE SUPPORT (2)
SCALE: N.T.S.

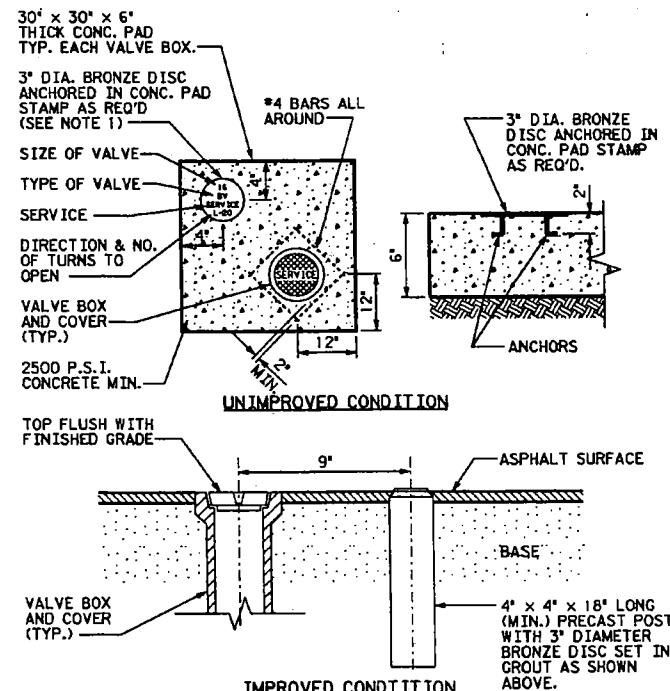


NOTE:
ALL SHOWER MATERIALS ARE TO BE STAINLESS STEEL

EMERGENCY SHOWEREYE-WASH (3)
SCALE: N.T.S.

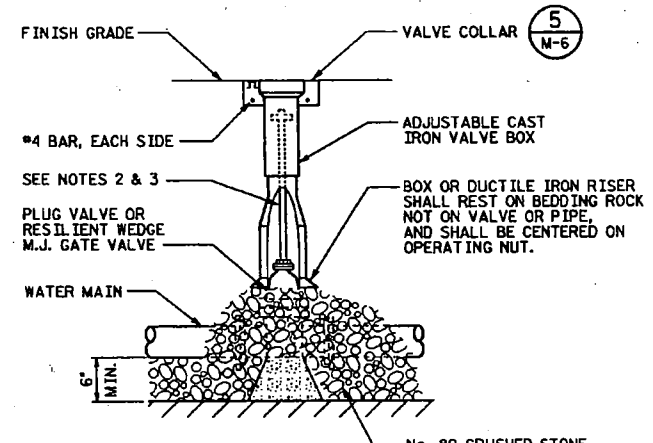


GUARDPOST DETAIL (4)
SCALE: N.T.S.



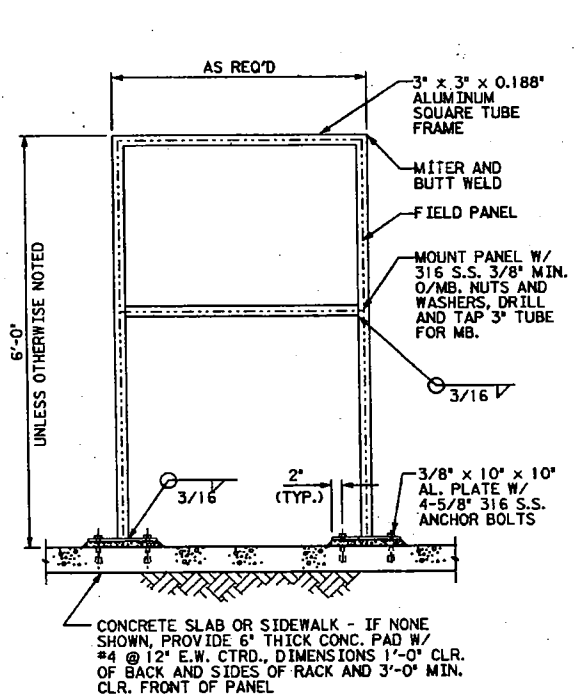
- NOTES:**
- BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES 16\"/>

VALVE COLLAR DETAIL (5)
SCALE: N.T.S.

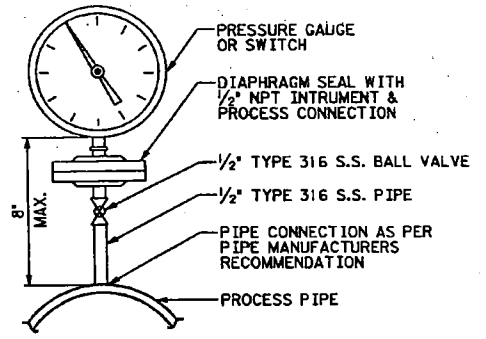


- NOTES:**
- VALVE BOX RISER EXTENSIONS SHALL BE DUCTILE IRON PIPE.
 - THE OPERATING NUT FOR VALVES SHALL BE 4\"/>

PLUG VALVE OR GATE VALVE & BOX DETAIL (6)
SCALE: N.T.S.



PANEL MOUNTING RACK (7)
SCALE: N.T.S.
(NOT REQUIRED FOR FLOOR MOUNTED PANELS)



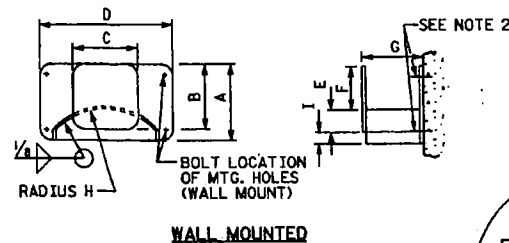
PRESSURE ELEMENT DIRECT MOUNT W/DIAPHRAM SEAL INSTALLATION (8)
SCALE: N.T.S.

"RECORD DRAWINGS"
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

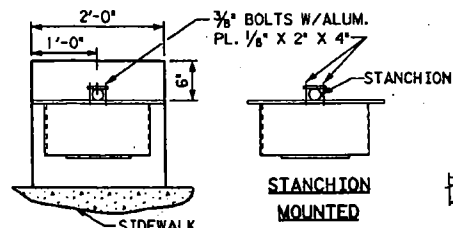
M-6



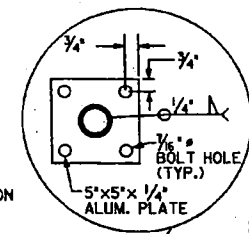
CLIENT	PROJECT	TASK	ORIGINAL FEB. 1999	6. _____	JOB NO. 07-172.02
HARDEE COUNTY	HARDEE COUNTY LANDFILL	MISCELLANEOUS DETAILS	REVISIONS:	7. _____	DRAWN OY
BOARD OF COUNTY COMMISSIONERS	LATERAL EXPANSION AND		RECORD DWG 07/01/00	8. _____	DESIGN RS
	LEACHATE STORAGE TANK FACILITY			9. _____	CHECKED CB
				10. _____	Q.C. _____
				11. _____	DESIGNED BY _____
				12. _____	CHECKED BY _____
					SHEET 11/16



WALL MOUNTED



PLAN - POST MOUNTED W/PAD



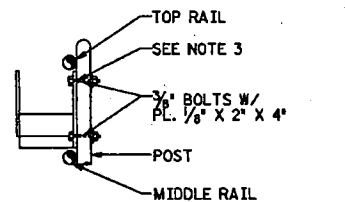
ELEVATION - POST MOUNTED

RACK TYPE	DIMENSION IN INCHES (SEE NOTE 4)								
	A	B	C	D	E	F	G	H	I
RACK FOR 3/4" HOSE	10 1/2	9	9	18	3	6	7 1/2	9 1/4	1 1/2
RACK FOR 1 1/2" HOSE	14	12	12	24	4	8	10	13	2

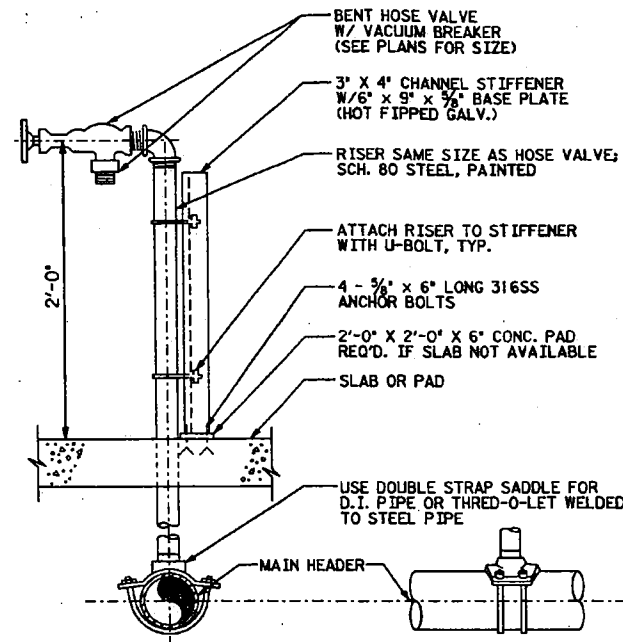
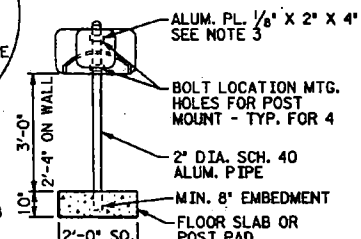
NOTES:

- ALL UNITS SHALL BE FABRICATED FROM 1/8" 6061-T6 ALUMINUM ALLOY PLATE.
- ATTACH TO CONCRETE WALL W/4 - 1/4" STAINLESS STEEL STUD TYPE WEDGE ANCHORS.
- ATTACH TO VERTICAL HANDRAIL OR INDIVIDUAL POST W/PLATES AND 4 - 1/4" S.S. BOLTS.
- VERIFY DIMENSIONS WITH THE HOSE FURNISHED FOR SIZING. INSERT DOUBLE SPACER NUTS BETWEEN COLUMN AND HOSE RACK.
- FURNISH 50'-0" LONG 3/4" DIA. ABRASION AND WEATHER RESISTANT (0.37 LB./LF.) EPDM RED COVER RAYON BRAIDED HOSE WITH ADJUSTABLE BRASS HOSE NOZZLE ON ONE END AND MALE x FEMALE (NPT) OF SERIES 316 S.S. QUICK CONNECT ON THE OTHER END TO MATCH HOSE BIBB. HOSE AND FITTING SHALL BE SUPPLIED BY AMAZON HOSE & RUBBER CO. OR APPROVED EQUAL.

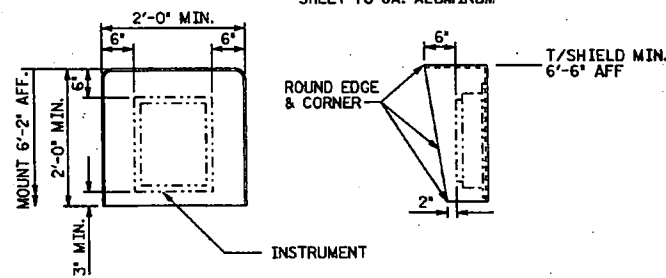
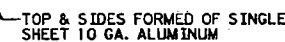
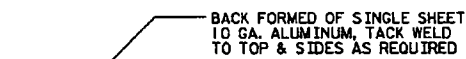
HOSE RACK DETAIL 9 SCALE: N.T.S.



HANDRAIL POST MOUNTED



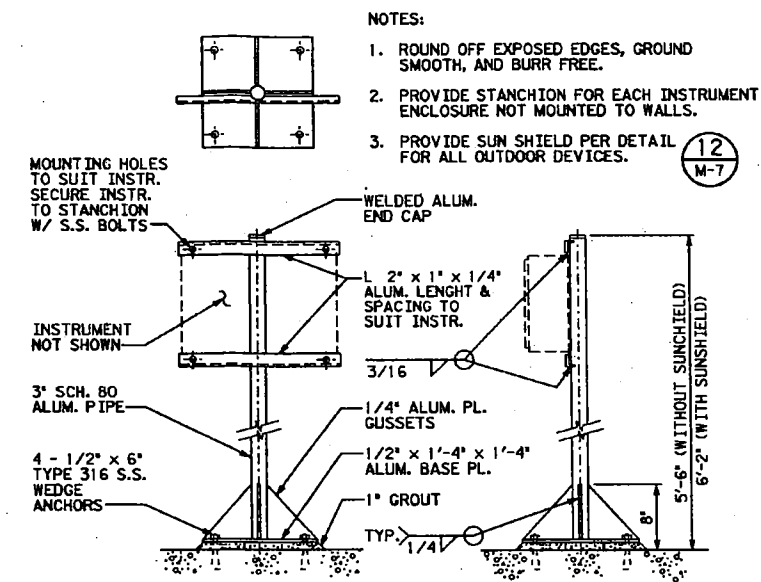
EXTERIOR HOSE VALVE 10 SCALE: N.T.S.



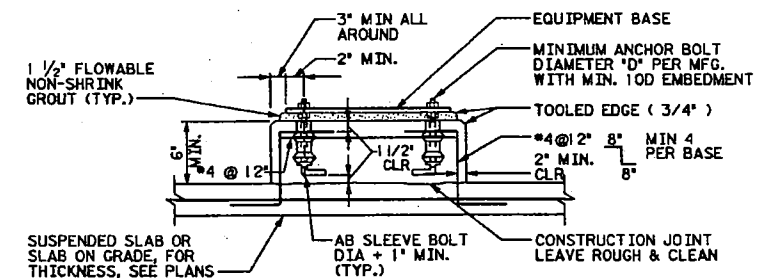
NOTES:

- EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.
- MOUNT SUN SHIELD BETWEEN INSTRUMENT AND MOUNTING SUPPORT. DRILL HOLES IN SUN SHIELD AS PER MOUNTING HOLES FOR INSTRUMENT.
- PROVIDE SUN SHIELD FOR ALL OUTDOOR INSTRUMENT ENCLOSURES (FLOW & LEVEL TRANSMITTERS, ETC.) EXPOSED TO SUNLIGHT MOUNTED TO WALLS, HANDRAILS, OR ON STANCHIONS OR RACKS.

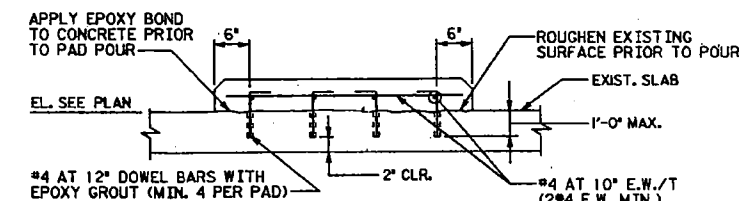
INSTRUMENT SUN SHIELD INSTALLATION 12 SCALE: N.T.S.



STANCHION SUPPORT FOR CASE MOUNTED INSTRUMENTS 11 SCALE: N.T.S.



CONCRETE PAD 'TYPE A'



CONCRETE PAD 'TYPE B'

EQUIPMENT PAD NOTES:

- PAD SIZE SHALL BE AS SHOWN ON THE PLANS OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER.
- THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.
- FOR CONCRETE PAD LOCATION, SEE MECHANICAL DRAWINGS. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
- ALL ANCHOR BOLTS SHALL BE TYPE 316 STAINLESS STEEL.

EQUIPMENT CONCRETE PAD DETAIL 13 SCALE: N.T.S.

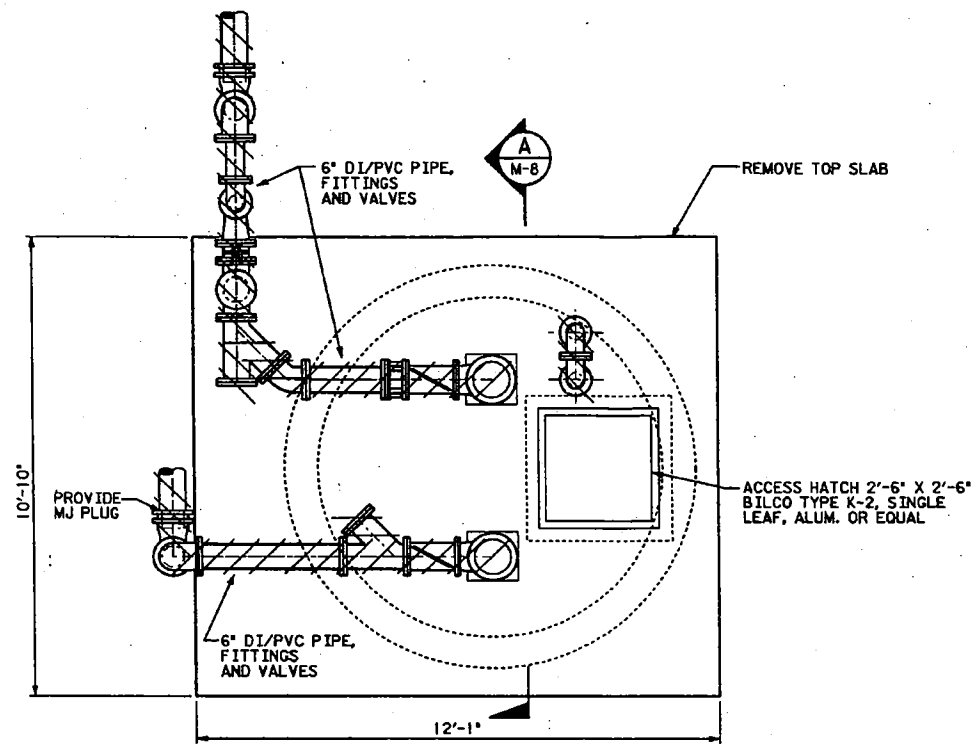
"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

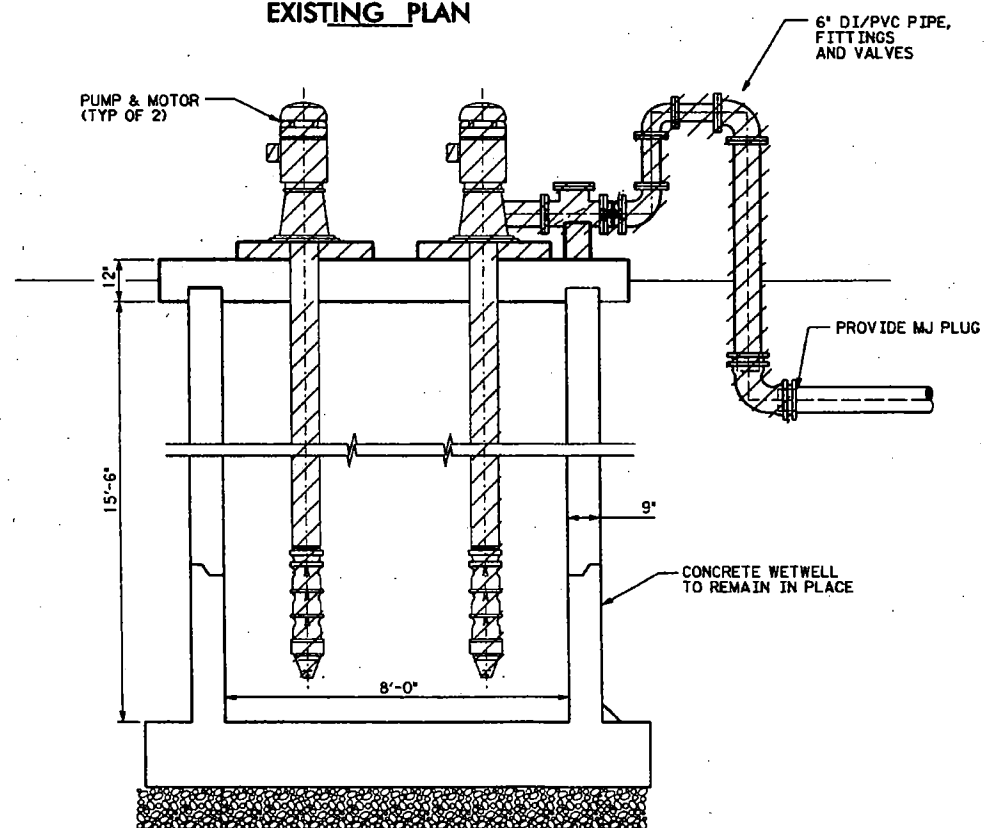


1580 N. Orange Avenue
Suite 700
Winter Park, FL 32789
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Fax. (407) 647-0684
www.pbsj.com

CLIENT	PROJECT	TASK	ORIGINAL FEB. 1999	6. _____	JOB NO. 07-172.02 DRAWN OV DESIGN RS CHECKED CF Q.C. DBS SHEET 12/16
HARDEE COUNTY	HARDEE COUNTY LANDFILL	MISCELLANEOUS DETAILS	REVISIONS:	7. _____	
BOARD OF COUNTY COMMISSIONERS	LATERAL EXPANSION AND		RECORD DWG 07/01/00	8. _____	
	LEACHATE STORAGE TANK FACILITY		2. _____	9. _____	
			3. _____	10. _____	
			4. _____	11. _____	
			5. _____	12. _____	



EXISTING PLAN



SECTION A

DEMOLITION NOTES:

1. CONTRACTOR SHALL DISMANTLE ALL EQUIPMENT AND PIPING AS SHOWN HATCHED. EQUIPMENT AND PIPING SHALL BE SALVAGED AS DIRECTED BY THE OWNER.
2. CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PROTECT THE WETWELL WHILE REMOVING THE TOP SLAB.

"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

M-8



CLIENT
HARDEE COUNTY
BOARD OF COUNTY COMMISSIONERS

PROJECT
HARDEE COUNTY LANDFILL
LATERAL EXPANSION AND
LEACHATE STORAGE TANK FACILITY

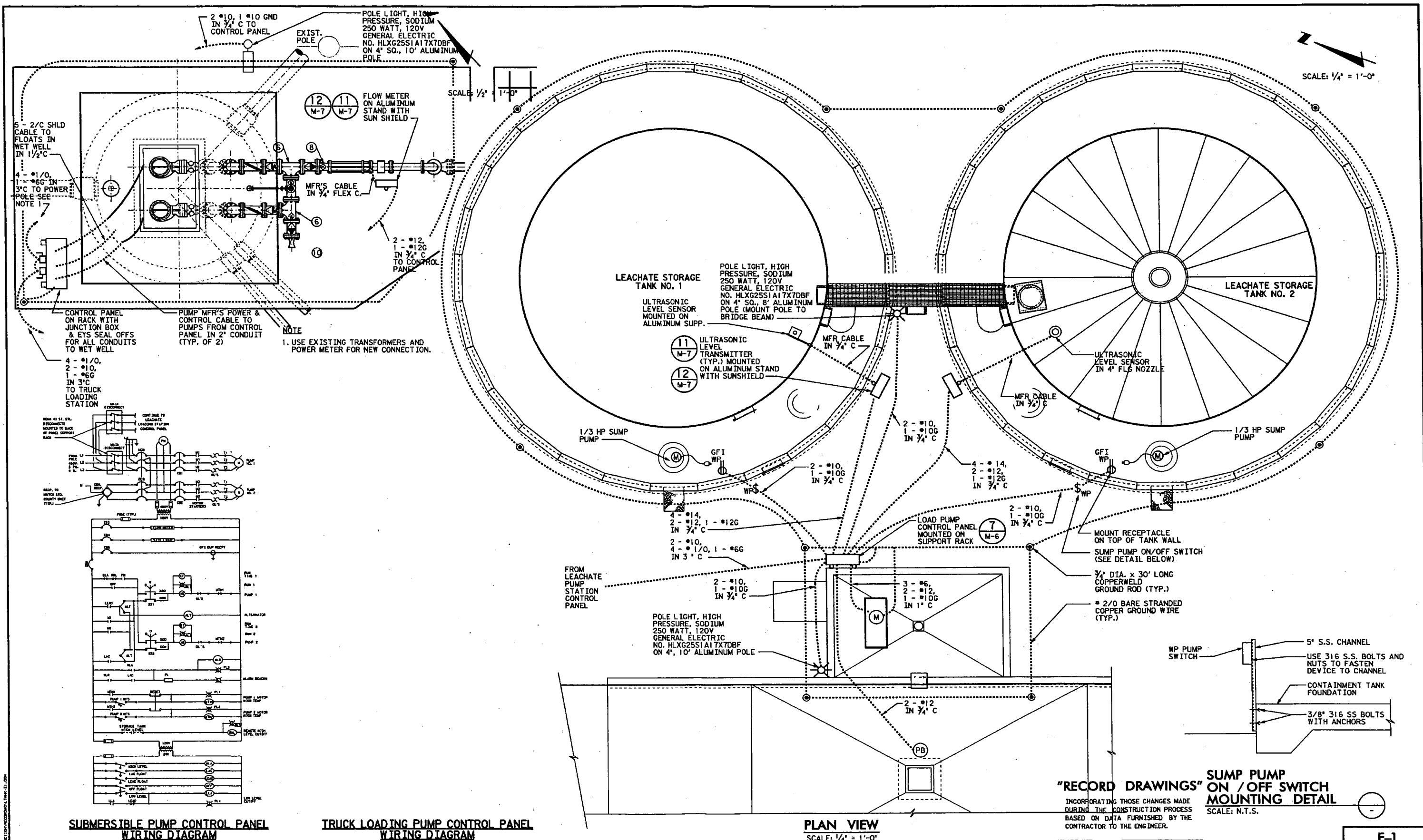
TASK
EXISTING LEACHATE PUMP STATION
DEMOLITION PLAN

ORIGINAL FEB. 1999
 REVISIONS:
 1. RECORD DWG 07/01/00
 2.
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 4.
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 11.
 12.

JOB NO. 07-172.02
 DRAWN GG
 DESIGN RS
 CHECKED CF
 Q.C. DBS

SHEET 13/16



SUBMERSIBLE PUMP CONTROL PANEL WIRING DIAGRAM

TRUCK LOADING PUMP CONTROL PANEL WIRING DIAGRAM

PLAN VIEW

"RECORD DRAWINGS" SUMP PUMP ON / OFF SWITCH MOUNTING DETAIL

E-1

PBS&J

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CLIENT	HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS
--------	--

PROJECT	HARDEE COUNTY LANDFILL LATERAL EXPANSION AND LEACHATE STORAGE TANK FACILITY
---------	---

TASK	LEACHATE STORAGE TANKS PUMP STATION AND LIFT STATION ELECTRICAL PLAN
------	--

ORIGINAL FEB. 1999	6. _____
REVISIONS:	7. _____
RECORD DWG. 07/01/00	8. _____
2. _____	9. _____
3. _____	10. _____
4. _____	11. _____
5. _____	12. _____

JOB NO. 07-172.02	DRAWN OV
DESIGN RS	CHECKED CF
Q.C. DBS	
SHEET 14/16	

COORDINATION

CONTRACTOR TO COORDINATE ALL PIPE AND CONDUIT LOCATIONS THRU CONCRETE WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS PRIOR TO PLACING CONCRETE. MECHANICAL CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL ANCHOR BOLT LOCATIONS.

STRUCTURAL DRAWINGS SHALL BE WORKED TOGETHER WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS TO PROPERLY LOCATE DRAINS, SLOPES, WALL PIPES, PIPE SLEEVES, ANCHOR BOLTS, BLOCKOUTS, ETC. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

THE DRAWINGS SHOW SECTIONS AND DETAILS FOR SPECIFIC CONDITIONS. THE SECTIONS AND DETAILS ARE TO APPLY TO OTHER SIMILAR CONDITIONS BUT NOT SPECIFICALLY SHOWN.

THE DRAWINGS SHALL BE WORKED TOGETHER WITH THE PROJECT SPECIFICATIONS.

PRECAUTIONS

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FLOTATION OF STRUCTURES UNTIL CONSTRUCTED AND ALL BACKFILL IS IN PLACE AND COMPACTED.

NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURE WALL UNTIL THE WALL HAS ATTAINED THE SPECIFIED 28-DAY CONCRETE STRENGTH.

CONTRACTOR'S ATTENTION IS HEREWITH DIRECTED TO PROJECT SPECIFICATIONS SECTION 03800 TITLED "LEAKAGE TESTING OF HYDRAULIC STRUCTURES".

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT UNDERMINING THE FOUNDATION OF EXISTING STRUCTURES DURING CONSTRUCTION.

DESIGN CRITERIA AND LOADINGS

DESIGN CRITERIA:

SANITARY STRUCTURES.....ACI 350R CONCRETE SANITARY ENGINEERING STRUCTURES
 OTHER STRUCTURES.....ACI 318-92 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
 LOCAL BUILDING CODE.....STANDARD BUILDING CODE-1994 EDITION.

DESIGN LIVE LOADS:

SEWAGE/SLUDGE.....PER ACI 350R
 PLATES GRATING AND STAIRS.....100 PSF
 WIND.....PER STANDARD BUILDING CODE (FOR 110 MPH)
 BUILDING ROOFS.....20 PSF

GEOTECHNICAL LOADINGS:

NET ALLOWABLE SOIL BEARING PRESSURE.....3,00 PSF

FOUNDATION DESIGN AND CONSTRUCTION CRITERIA AS PER HARDEE COUNTY SANITARY LANDFILL SUBSURFACE SOIL EXPLORATION, 'AS PREPARED DATED MARCH 10, 1997 PSI PROJECT NO. 757-75054.'

CAST-IN-PLACE CONCRETE

CAST-IN-PLACE CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

WASTEWATER AND WATER RETAINING STRUCTURES.....4,000 PSI (CLASS A)
 BUILDINGS, PIPE SUPPORTS, PUMP PADS, ENCASMENTS.....3,000 PSI (CLASS B)

CONCRETE PLACEMENT SEQUENCE

CONCRETE SHALL BE PLACED IN ACCORDANCE WITH THE EXPANSION CONSTRUCTION AND CONTRACTION JOINT LAYOUTS SHOWN ON THE DRAWINGS, UNLESS OTHERWISE APPROVED. ALLOW A MINIMUM OF 72 HOURS BETWEEN ADJACENT SLAB AND WALL SEGMENT POURS.

CONCRETE CHAMFER

ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" x 3/4" INCHES UNLESS OTHERWISE INDICATED.

REINFORCING STEEL

REINFORCING STEEL FOR ALL BARS SHALL CONFORM TO ASTM A615, GRADE 60 OF U.S. MANUFACTURE.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

REINFORCEMENT CLEARANCE

CLEARANCE OR RENFORCING STEEL FROM FACE OF CONCRETE TO THE OUTERMOST TIE OR BAR SHALL BE AS FOLLOWS, UNLESS OTHERWISE INDICATED ON THE DRAWINGS

FOOTINGS.....2' TOP AND SIDES
 3' BOTTOM WHEN CAST AGAINST EARTH
 WALLS.....2' TOP AND SIDES
 BEAMS AND COLUMNS.....2' TO TIES
 SLABS.....2' TOP AND SIDES
 3' BOTTOM WHEN CAST AGAINST EARTH

STRUCTURAL STEEL

STRUCTURAL AND MISCELLANEOUS STEEL (PLATES, BARS, ETC.) SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE NOTED.

STEEL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.

ANCHOR BOLTS SHALL CONFORM TO ASTM A307 (GALVANIZED).

WELDING ELECTRODES SHALL CONFORM TO AWS 5.1 OR A5.5, E70XX.

STAINLESS STEEL

STRUCTURAL SHAPES, PLATES, NUTS AND BOLTS, ETC. SHALL CONFORM TO AISI TYPE OR 316 UNLESS OTHERWISE NOTED ON THE DRAWINGS.

WELDING ELECTRODES SHALL CONFORM TO AWS E308-15 WHERE BASE MAETAL STAINLESS STEEL IS USED AND AWS E309 WHERE STAINLESS STEEL IS WELDED TO CARBON STEEL.

STRUCTURAL ALUMINUM

STRUCTURAL AND MISCELLANEOUS ALUMINUM (PLATES, RAILINGS, BARS, ETC.) SHALL CONFORM TO ASTM B221, ALLOY 6061-T6.

WELDING ELECTRODES SHALL CONFORM TO AWS D1.1.

ALUMINUM EMBEDDED IN OR IN CONTACT WITH CONCRETE, OR IN CONTACT WITH DIFFERENT METALS (STEEL) SHALL BE COATED IN ACCORDANCE WITH SECTION 05140 OF PROJECT SPECIFICATIONS.

ALUMINUM GRATING

GRATING SHALL BE ALUMINUM AS SHOWN ON THE DRAWINGS, AND AS PER SECTIONS 05530 OF THE PROJECT SPECIFICATONS. ALL GRATING SHALL BE REMOVABLE "SLIP-RESISTANT" SERRATED TYPE.

MASONRY

MASONRY SHALL CONFORM TO DIVISION 4 OF THE PROJECT SPECIFICAITONS.

SHOP DRAWINGS

THE FOLLOWING SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW. FABRICATION SHALL NOT COMMENCE UNTIL ALL REVIEWS ARE COMPLETED.

- REINFORCING STEEL
- STRUCTURAL STEEL
- STAINLESS STEEL
- ALUMINUM SHAPES, GRATING, HANDRAILING, TEC.
- PRECAST CONCRETE

ELEVATIONS

ELEVATIONS SHOWN ON THE DRAWINGS REFERE TO NATINAL GEOODETIC VERTICAL DATUM (NGVD) UNLESS OTHERWISE INDICATED. FOR ELEVATIONS NOT SHOWN REFER TO CIVIL (SITE) DRAWINGS.

CONSTRUCTION LAYOUT

FOR THE ACCURATE LOCATION AND ORIENTATION OF STRUCTURES REFER TO CIVIL (SITE) DRAWINGS ONLY. STRUCTURAL DRAWINGS DO NOT NECESSARILY SHOW TRUE LOCATION OF ORIENTATION OF ALL STRUCTURES.

TYPICAL DETAILS

"TYPICAL DETAILS" APPLY AT ALL APPROPRIATE LOCATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS. "TYPICAL DETAIL" SHEETS, ARE LOCATED AT THE END OF THE STRUCTURAL DRAWING SET.

TANK COATINGS

ALL CONCRETE IN CONTACT WITH WASTEWATERS SHALL BE COATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

FOUNDATION PREPARATION

THE FOLLOWING FOUNDATION PREPARATION SHALL BE ADHERED TO, UNLESS OTHERWISE NOTED ON THE DRAWINGS:

REMOVE ALL ORGANIC TOPSOIL, SURFACE VEGETATION, DEBRIS, ETC. AT EACH STRUCTURE SITE FOR A MINIMUM DISTANCE OF 10 FEET OUTSIDE STRUCTURE PERIPHERY.

DEWATER AND EXCAVATE SOIL AROUND AND BELOW THE STRUCTURE AS PER THE PROJECT SPECIFICATIONS. (IF THE BOTTOM OF FOUNDATION IS BELOW THE WATER TABLE, THEN DEWATERING IS REQUIRED).

COMPACT SUBGRADE TO A DENSITY OF 100 PERCENT OF THE STANDARD PROCTOR TEST (ASTM D-698) AS SPECIFIED TO 3'-0" BELOW THE STRUCTURE AND/OR EXCAVATED SURFACE. COMPACT SUBGRADE FOR A MINIMUM DISTANCE OF 5 FEET OUTSIDE STRUCTURE PERIPHERY.

IF FILL IS REQUIRED, PLACE IN LOOSE LIFTS NOT TO EXCEED 1'-0" AND COMPACT AS NOTED ABOVE.

BACKFILL AND COMPACT AROUND NEW CONSTRUCTION IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

ABBREVIATIONS - STRUCTURAL

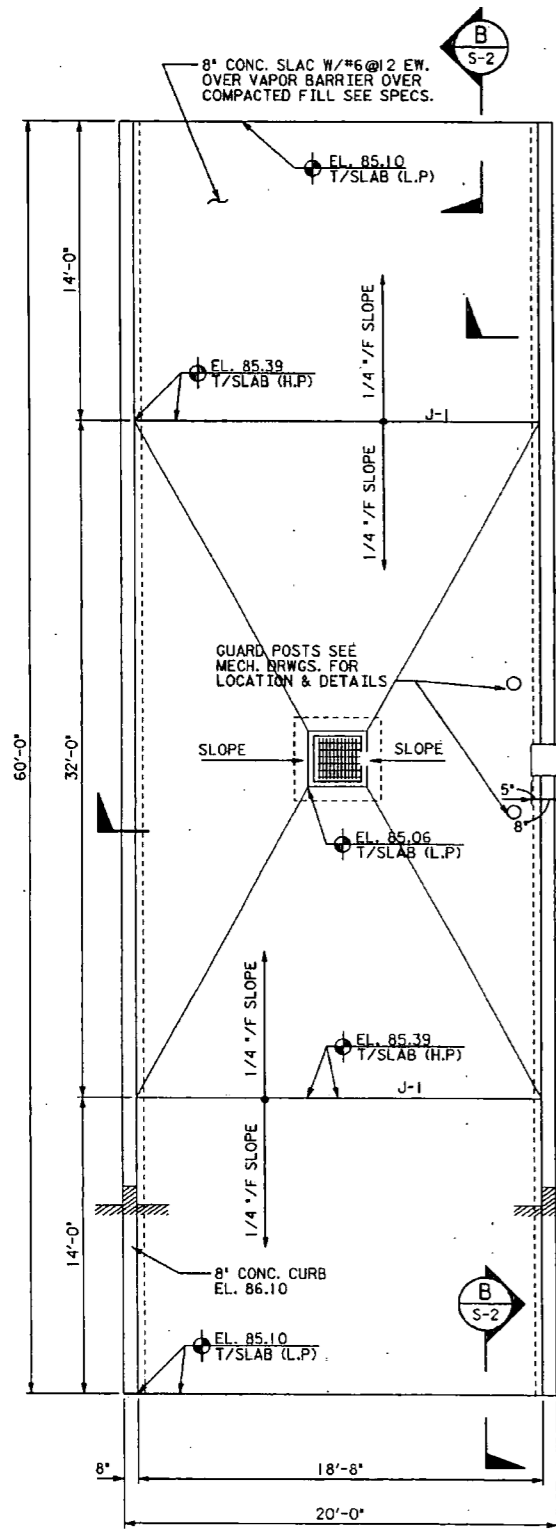
A.B.	ANCHOR BOLT	H.P.	HIGH POINT
ADD'L.	ADDITIONAL	L.	LONG
ALT.	ALTERNATE	L.P.	LOW POINT
ALUM.	ALUMINUM	M.O.	MASONRY OPENING
ARCH.	ARCHITECT (URAL)	MFR.	MANUFACTURE (ER)
BRG.	BEARING	MAX.	MAXIMUM
BM.	BEAM	MECH.	MECHANICAL
B./ BOT.	BOTTOM	MIN.	MINIMUM
BLDG.	BUILDING	N.T.S.	NOT TO SCALE
COV.	COVER	O.C.	ON CENTER
CL.	CENTER LINE	OPNG.	OPENING
COL.	CLEAR (ANCE)	PL.	PLATE
CONC.	COLUMN	P.S.F.	POUNDS PER SQUARE FOOT
C.M.U.	CONCRETE	P.S.I.	POUNDS PER SQUARE INCH
CONN.	CONCRETE MASONRY UNIT	REF.	REFERENCE
C.J.	CONNECTION	REINF.	REINFORCE (D) (ING)
CK.	CONSTRUCTION JOINT	REQ'D.	REQUIRED
CT.J.	CHECKERED	S.E.	SLAB EDGE
DET. (S)	CONTRACTION JOINT	SECT.	SECTION
DIAM.	DETAIL (S)	SHT.	SHEET
DN.	DIAMETER	SP.	SPACE (S)
DWGS.	DOWN	SPECS.	SPECIFICATIONS
DWL.	DRAWINGS	SQ.	SQUARE
EQUIPT.	DOWEL	S.S.	STAINLESS STEEL
EA.	EACH	STD.	STANDARD
E.E.	EACH END	STL.	STEEL
E.F.	EACH FACE	SYMM.	SYMMETRICAL
E.W.	EACH WAY	T.B.	TIE BEAM
EL.	ELEVATION	T.C.	TIE COLUMN
EQ. SP.	EQUAL SPACED	T. & B.	TOP AND BOTTOM
E.J.	EXPANSION JOINT	T/	TOP OF
F.D.	FLOOR DRAIN	TYP.	TYPICAL
F.IN. GR.	FINISH GRADE	U.O.N.	UNLESS OTEHRWISE NOTED
FT.	FOOT	VERT.	VERTICAL
FTG.	FOOTING	W.F.	WALL FOOTING
FND.	FOUNDATION	WS.	WATERSTOP
GALV.	GALVANIZED	W/	WITH
HOR.	HORIZONTAL	W.P.	WORKING POINT

"RECORD DRAWINGS"

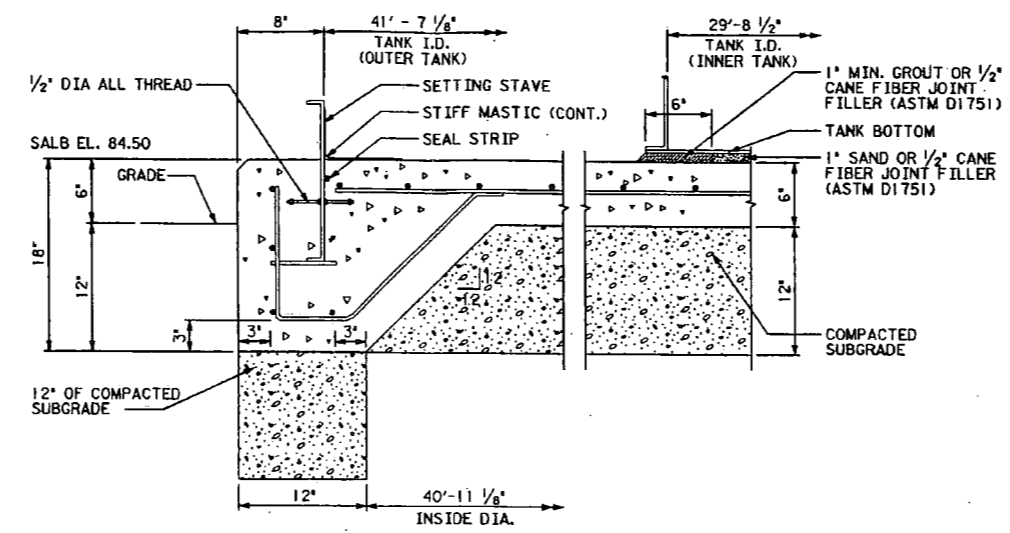
INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.



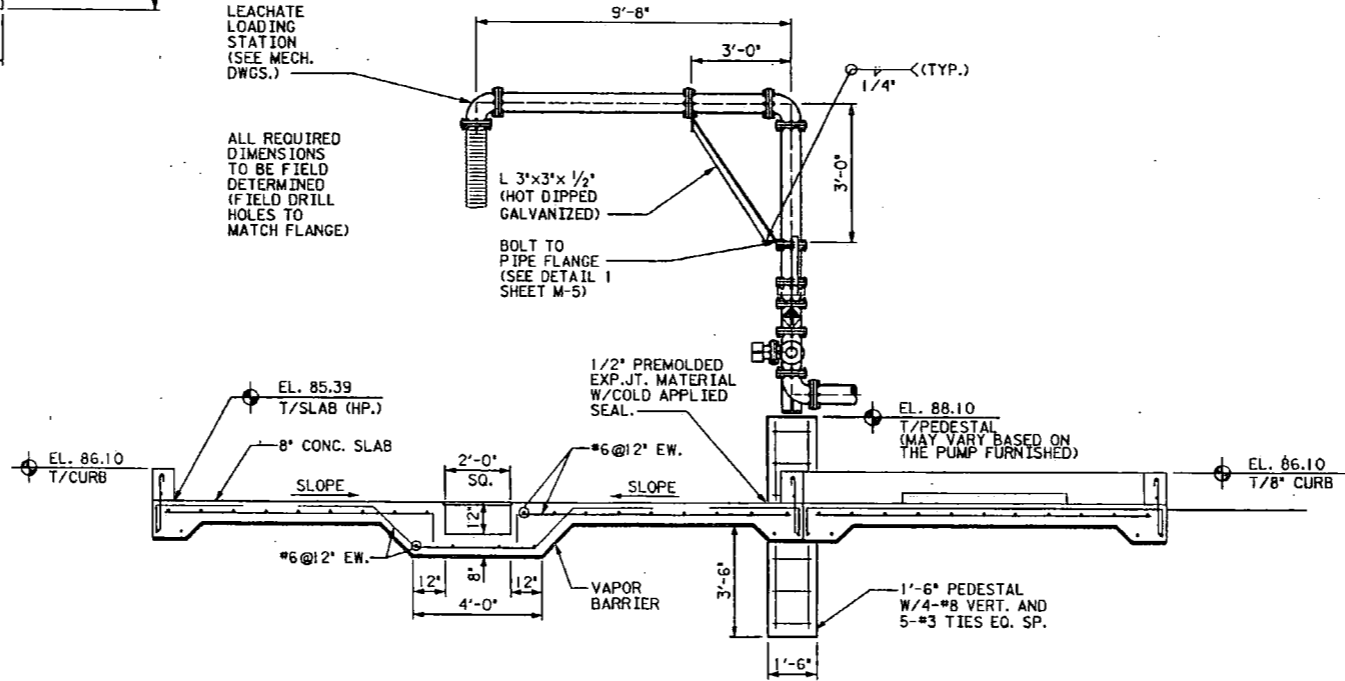
CLIENT	PROJECT	TASK	ORIGINAL FEB. 1999	6.	JOB NO. 07-172.02 DRAWN OY DESIGN RS CHECKED CF Q.C. DBS SHEET 15/16
HARDEE COUNTY	HARDEE COUNTY LANDFILL	GENERAL NOTES	REVISIONS:	7.	
BOARD OF COUNTY COMMISSIONERS	LATERAL EXPANSION AND		RECORD DWG 07/01/00	8.	
	LEACHATE STORAGE TANK FACILITY			9.	
				10.	
				11.	
				12.	



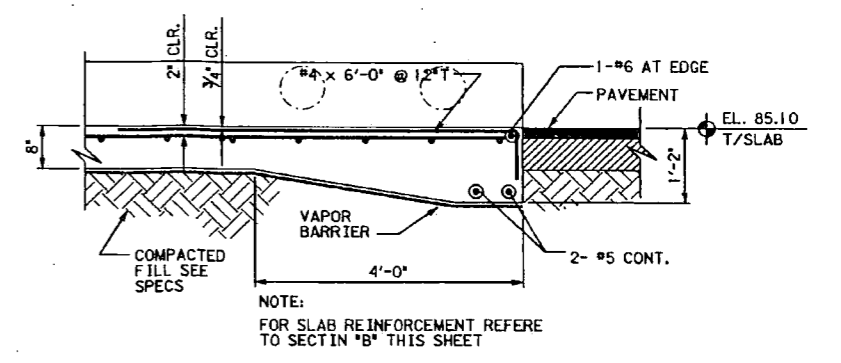
FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



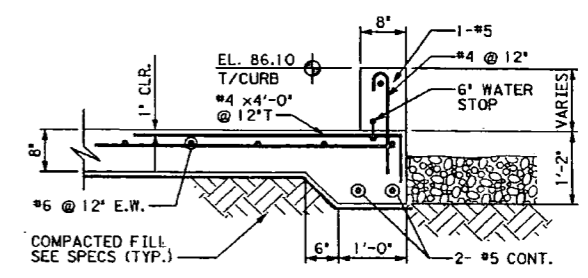
LEACHATE TANK FOUNDATION GENERAL ARRANGEMENT
SCALE: 1 1/2" = 1'-0"



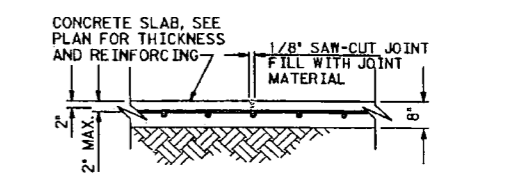
SECTION A
SCALE: 3/8" = 1'-0"



SECTION B
SCALE: 3/4" = 1'-0"



SECTION C
SCALE: 3/4" = 1'-0"



TYPICAL CONTROL JOINT J-1 DETAIL
N.T.S.

"RECORD DRAWINGS"

INCORPORATING THOSE CHANGES MADE DURING THE CONSTRUCTION PROCESS BASED ON DATA FURNISHED BY THE CONTRACTOR TO THE ENGINEER.

S-2

PBS&J
1560 N. Orange Avenue
Suite 700
Winter Park, FL 32789
Tel. (407) 647-7275
Fax. (407) 647-0624
www.pbsj.com

CLIENT	HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS
--------	--

PROJECT	HARDEE COUNTY LANDFILL LATERAL EXPANSION AND LEACHATE STORAGE TANK FACILITY
---------	---

TASK	TRUCK LOADING FACILITY AND PUMP STATION PLAN, SECTIONS AND DETAILS
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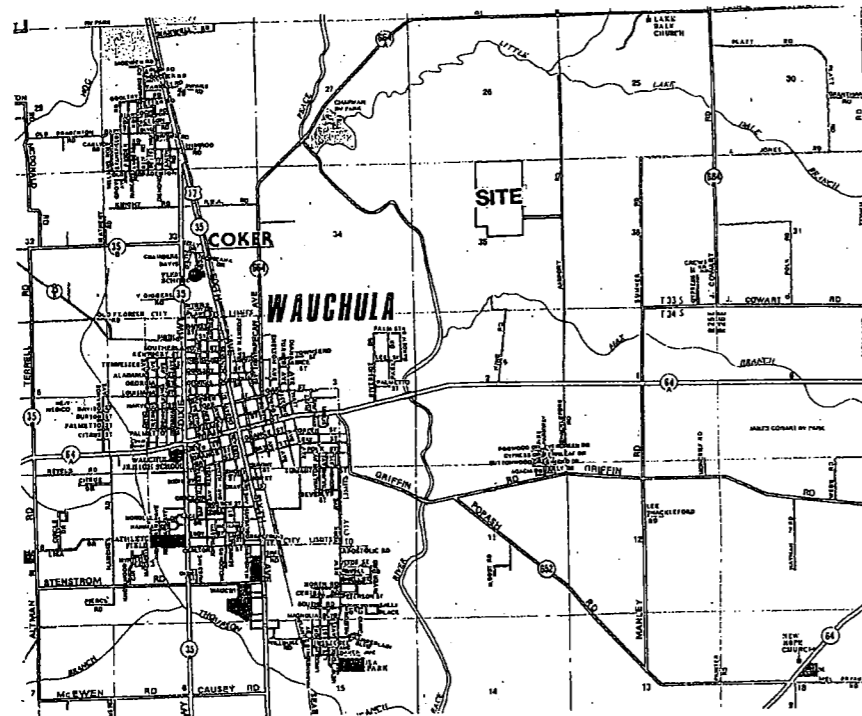
ORIGINAL FEB. 1999	6. _____
REVISIONS:	7. _____
Δ RECORD DWG. 07/01/00	8. _____
2. _____	9. _____
3. _____	10. _____
4. _____	11. _____
5. _____	12. _____

JOB NO. 07-172.02
DRAWN OY
DESIGN RS
CHECKED CF
G.C. DBS
SHEET 16/16

WADE TRIM

**HARDEE COUNTY, FLORIDA
REGIONAL COUNTY LANDFILL
SEPTEMBER 1994**

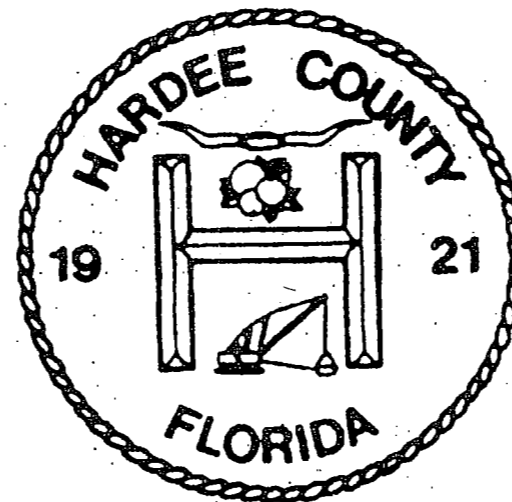
RECEIVED
SEP 12 1994
Department of Environmental Protection
by SOUTHWEST DISTRICT



VICINITY MAP

HARDEE COUNTY, FLORIDA

REGIONAL COUNTY LANDFILL



PREPARED FOR
**HARDEE COUNTY DEPARTMENT OF SOLID
WASTE AND RECYCLING CENTER**

P. O. BOX 246
WAUCHULA, FLORIDA 33873
(813) ● 773 ● 5089

TABLE OF CONTENTS

TITLE	SHEET NO.
COVER	1
EXISTING SITE PLAN	2
SEQUENCE OF FILL	3
IMPROVEMENT SITE PLAN	4
IRRIGATION PLAN	5
DETAILS	6

LEGAL DESCRIPTION

Begin at the Southeast corner of the NE $\frac{1}{4}$ of Section 35, Township 33 South, Range 25 East, and go West 660 feet to the Point of Beginning, thence run North 2,640 feet, thence West 1,650 feet, thence South 2,310 feet, thence East 330 feet, thence South 330 feet, thence East 1,320 feet to the Point of Beginning;

Together with a non-exclusive easement over, along and across the real property located in Hardee County, Florida, described as follows:

Begin at the Southeast corner of the NE $\frac{1}{4}$ of Section 35, Township 33 South, Range 25 East, and go West 660 feet, thence North 455 feet to a Point of Beginning, being a tract of land 30 feet right and 30 feet left of the following described line: From a point of beginning proceed East approximately 660 feet to the centerline of Airport Road.

PREPARED BY

WADE TRIM

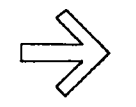
4919 MEMORIAL HIGHWAY
SUITE 200
TAMPA, FLORIDA 33534
813 ● 882 ● 8366


STEVEN A. DUTCH P.E.
FLORIDA ENGINEER'S REG. NO. 39118

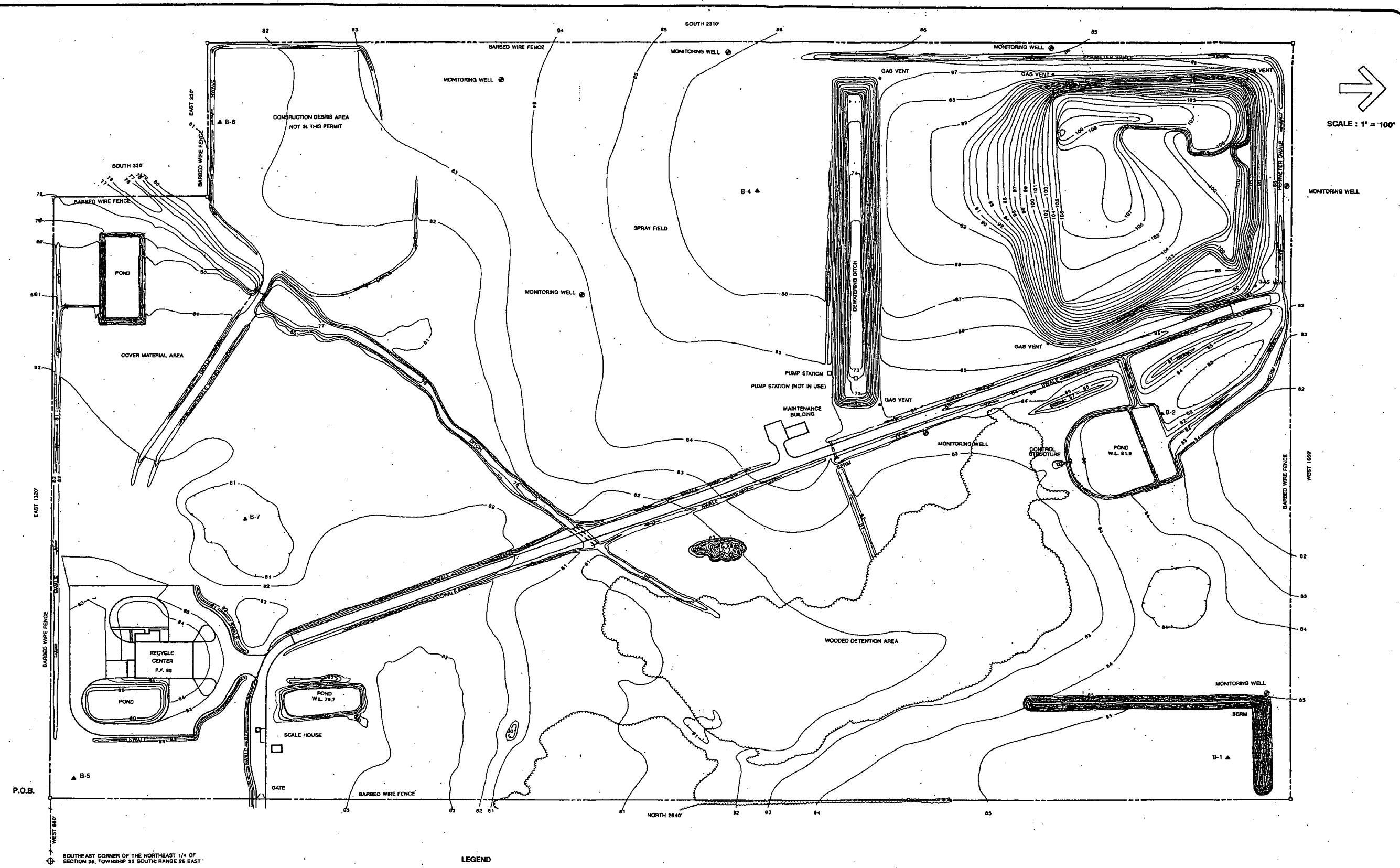
DATE 9/6/94
HAR2001.01

Record Drawing

FILE ONLY



SCALE: 1" = 100'

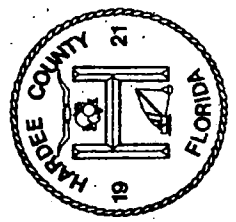


P.O.B.
 WEST 1607
 EAST 1327
 SOUTH 2310
 SOUTH 2312
 NORTH 2840
 WEST 1609
 SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 36, TOWNSHIP 33 SOUTH, RANGE 26 EAST

LEGEND
 ● MONITORING WELL
 ▲ SOIL BORING
 • GAS VENT

HARDEE COUNTY, FLORIDA
 REGIONAL COUNTY LANDFILL

EXISTING SITE PLAN



DESIGNED BY: *dlb*
 DRAWN BY: *dlb*
 CHECKED BY: *S.A.L.A.*
 DATE: *9/15/94*
 STEVEN A. DITCH
 P.L.A. ENGINEER REG. NO. 39118

Landscape Architecture
 Environmental Sciences

Engineering
 Planning

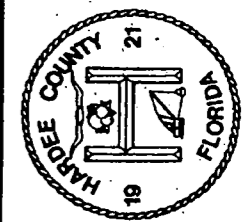
Wade-Trim



Record Drawing

HARDEE COUNTY, FLORIDA
REGIONAL COUNTY LANDFILL

SEQUENCE OF FILL



Landscape Architecture
Environmental Sciences

Engineering
Planning

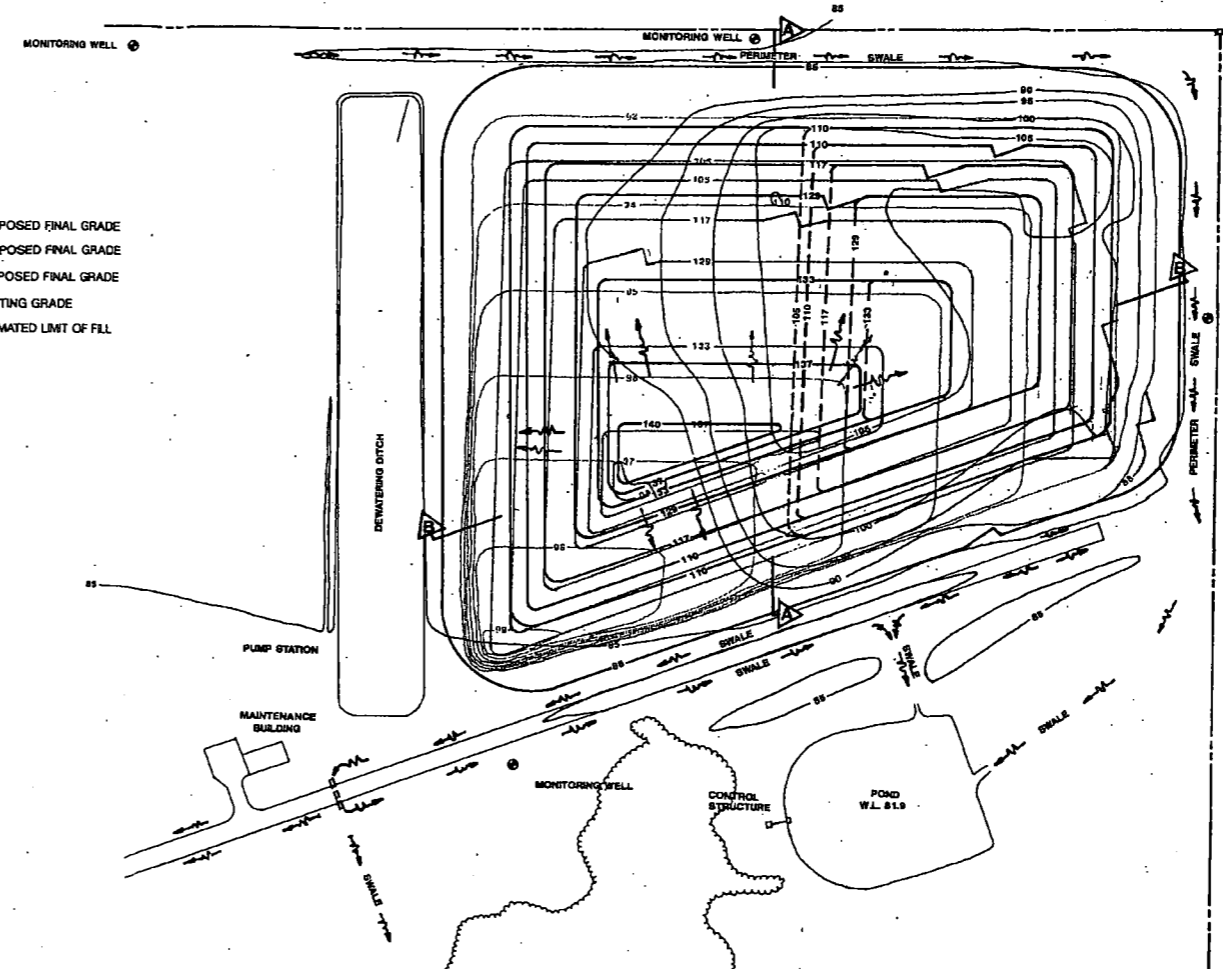
Wade-Trim



Record Drawing

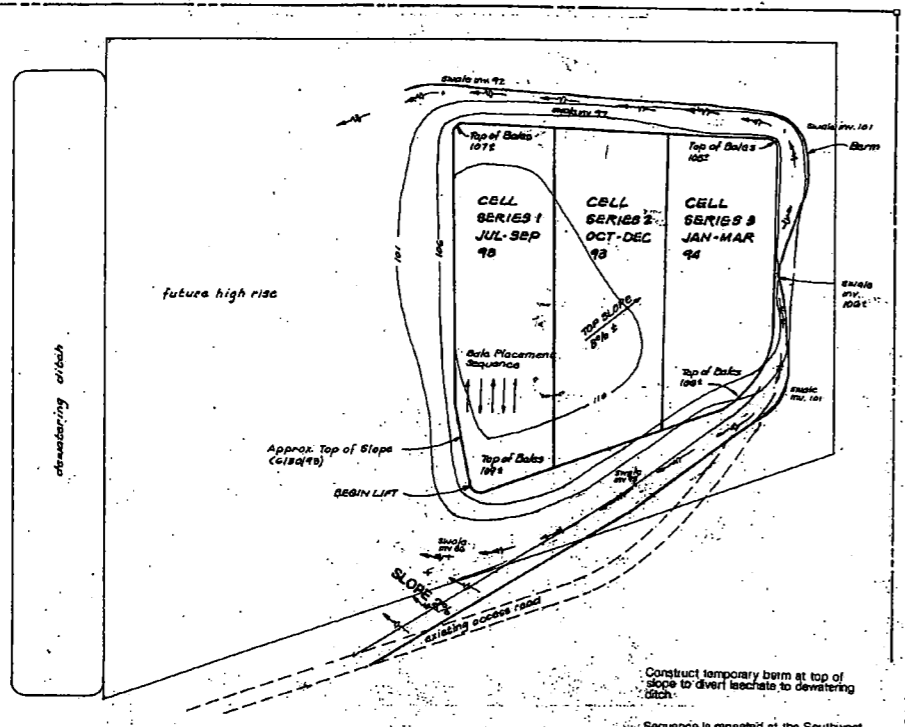


SCALE: 1" = 100'



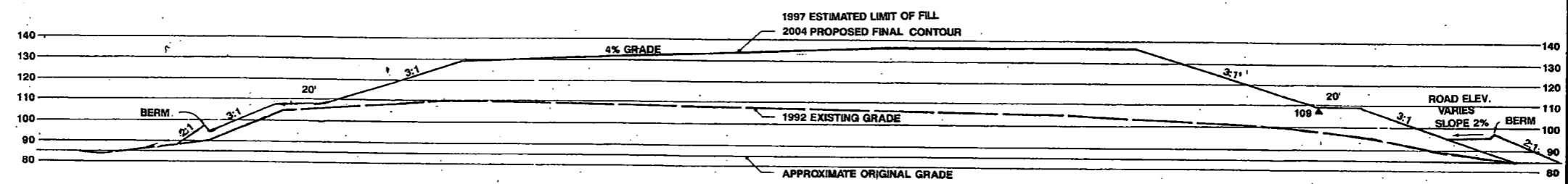
2004 PROPOSED FINAL GRADE PLAN

- LEGEND**
- 90 — 1982 PROPOSED FINAL GRADE
 - 90 — 1987 PROPOSED FINAL GRADE
 - 90 — 2004 PROPOSED FINAL GRADE
 - 90 — 1992 EXISTING GRADE
 - 105 — 1997 ESTIMATED LIMIT OF FILL

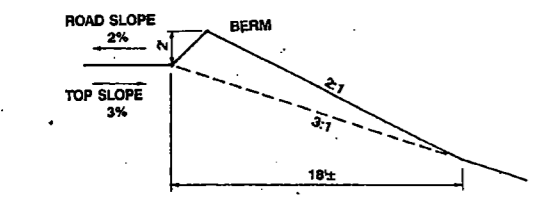


SEQUENCE OF FILL

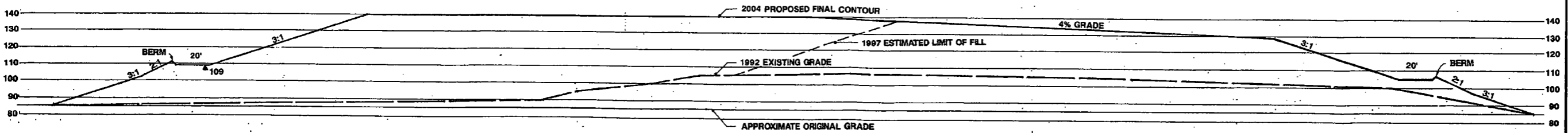
Construct temporary berm at top of slope to divert leachate to dewatering ditch.
Sequence is repeated at the Southwest corner of area.
Road to slope 2% to provide sheet flow to dewatering ditch.



SECTION A-A



TYPICAL BERM DETAIL

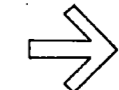


SECTION B-B

SCALE: HORIZ. 1" = 30'
VERT. 1" = 30'

DESIGNED BY: *db*
DRAWN BY: *db*
CHECKED BY: *S.A.D.*
DATE: *7/14/99*

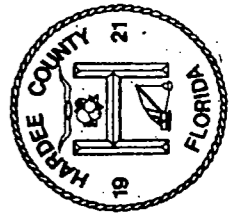
STEVEN A. DUTCH
P.L.A. ENGINEER REG. NO. 93118
DATE



SCALE: 1" = 100'

HARDEE COUNTY, FLORIDA
REGIONAL COUNTY LANDFILL

IMPROVEMENT SITE PLAN



DESIGNED BY: *dlb*
DRAWN BY: *dlb*
CHECKED BY: *E.G.O.*
DATE: *7/6/11*

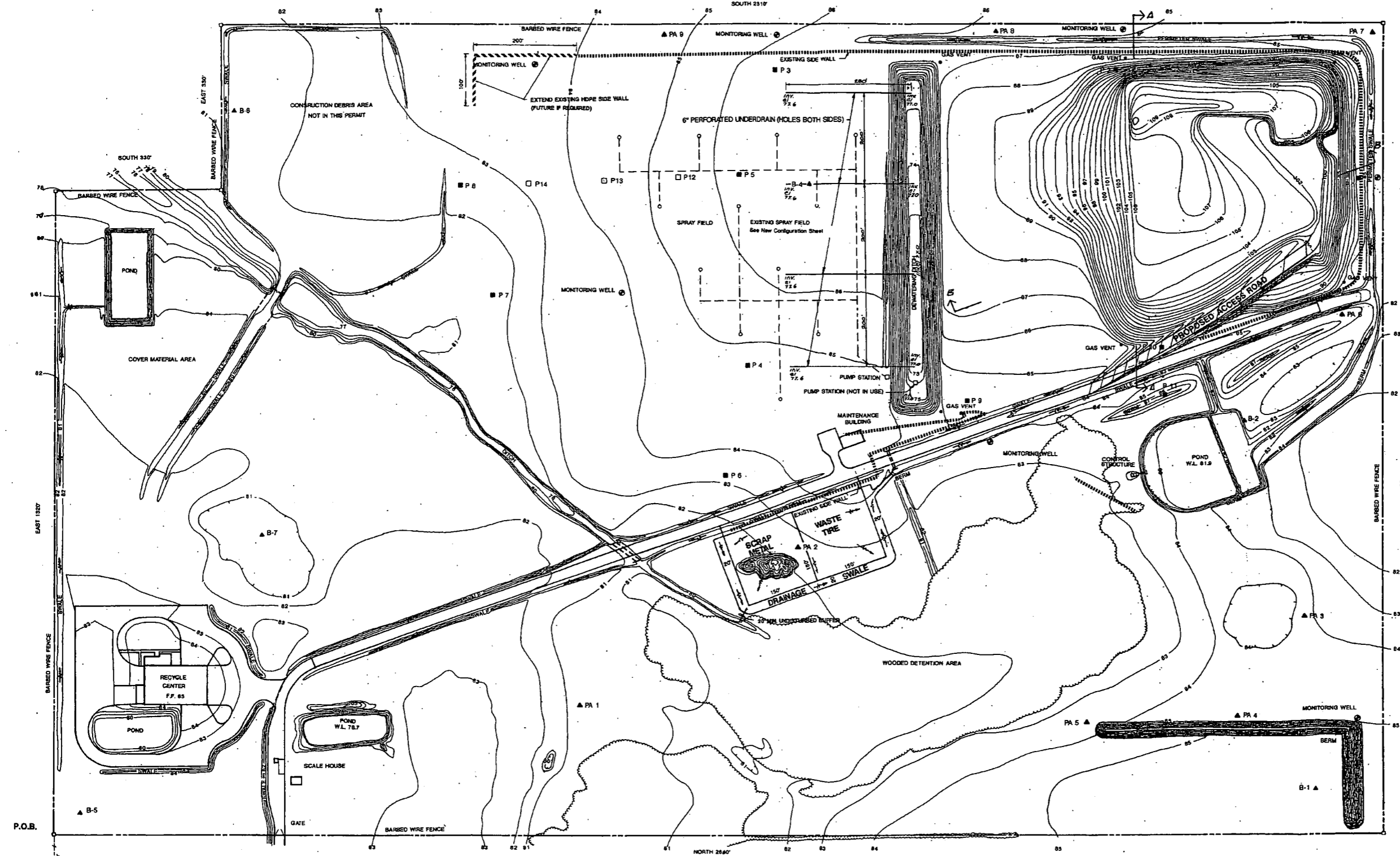
Engineering Planning
Landscape Architecture
Environmental Sciences

Wade-Trim



Record Drawing

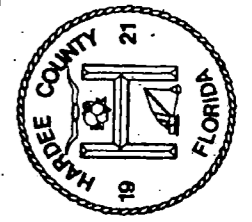
HAR2001.01



P.O.B.
SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 25, TOWNSHIP 23 SOUTH, RANGE 28 EAST

- LEGEND**
- MONITORING WELL
 - ▲ SOIL BORING
 - GAS VENT
 - EXISTING SIDE WALL
 - - - PROPOSED SIDE WALL
 - PEZOMETER LOCATION
 - PROPOSED PEZOMETER

- NOTE**
- Contractor shall remove vegetation from dewatering ditch embankment above elevation 77.0 prior to installing 6" underdrains.
 - Contractor shall construct new scrapmetal and waste tire storage area and relocate materials from existing area prior to irrigation improvements.
 - Existing irrigation systems shall remain in operation during construction. Contractor shall sequence activities to allow construction without disrupting irrigation operation.



DESIGNED BY: JLB
DRAWN BY: JLB
CHECKED BY: S.A.L.D.

[Signature]
9/19/94

STEVEN A. BUTCH
P.L.A. ENGINEERS REGD. 20118
DATE

Landscape Architecture
Environmental Sciences

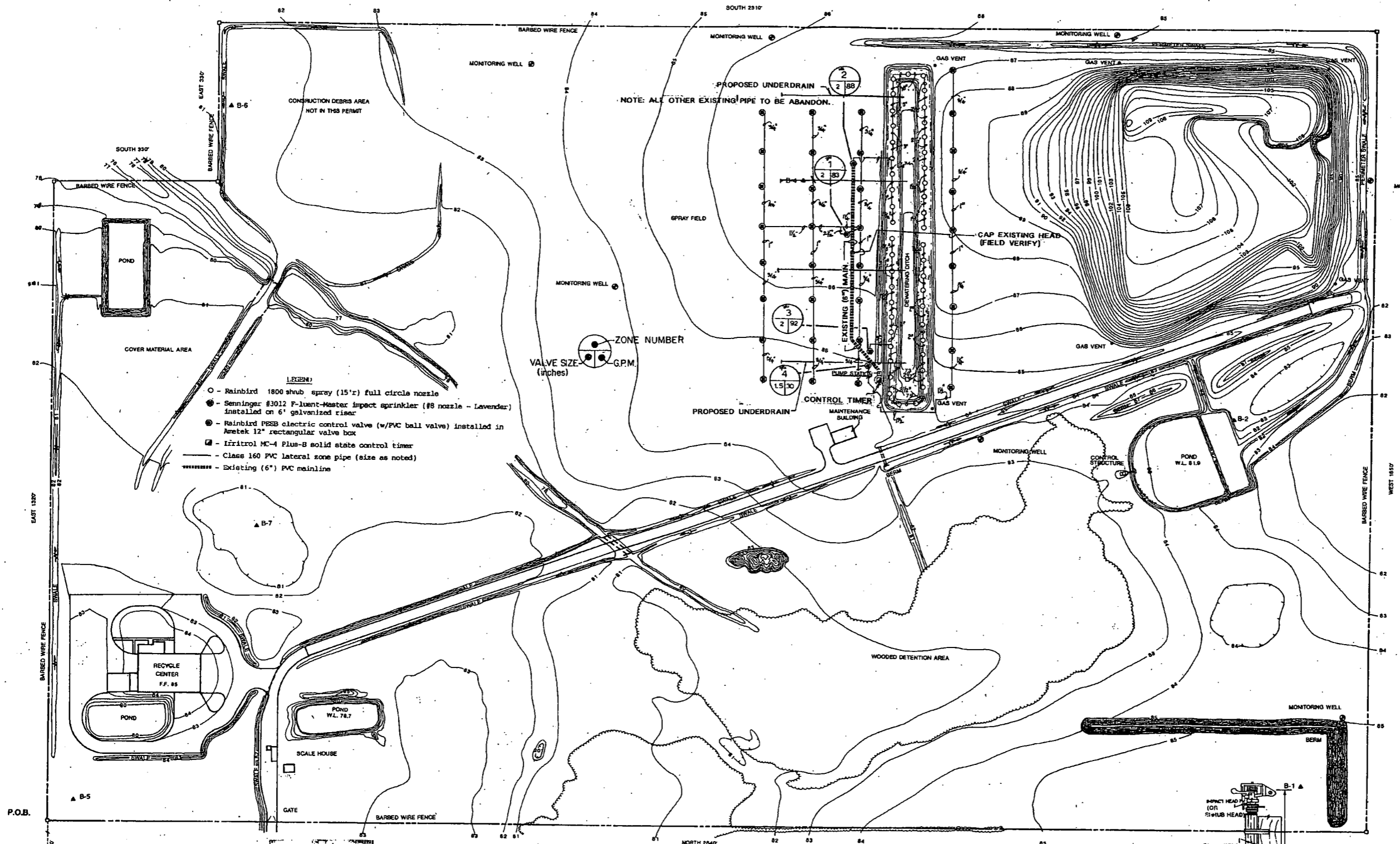
Engineering
Planning

Wade-Trim



Record Drawing

SCALE: 1" = 100'

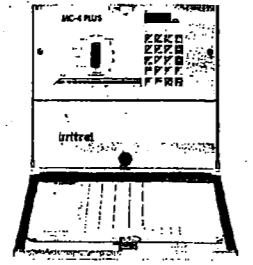


- LEGEND
- - Rainbird 1800 shrub spray (15"r) full circle nozzle
 - - Senninger #3012 F-luant-Master impact sprinkler (#8 nozzle - Lavender) installed on 6" galvanized riser
 - ⊙ - Rainbird PESB electric control valve (w/PVC ball valve) installed in Aetek 12" rectangular valve box
 - ⊞ - Irritrol MC-4 Plus-B solid state control timer
 - Class 160 PVC lateral zone pipe (size as noted)
 - Existing (6") PVC mainline

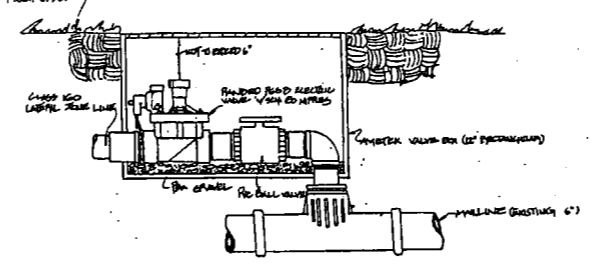
VALVE SIZE (inches) G.P.M.

VALVE SCHEDULE

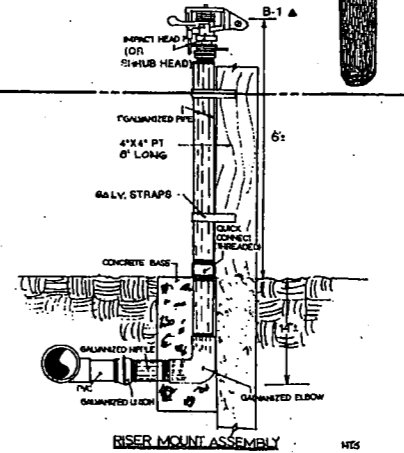
ZONE 01	03.28 GPM x 30 minutes watering time	= 23,318 gallons per day
02	08.00 GPM x 45 minutes watering time	= 3,950 gallons per day
03	02.00 GPM x 45 minutes watering time	= 4,140 gallons per day
04	30.00 GPM x 110 minutes watering time	= 3,356 gallons per day
		780 minutes (8 hours) 34,764 gallons per day



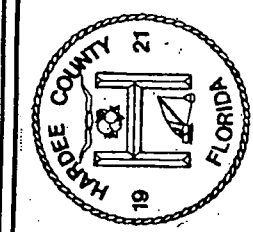
MC-4 Plus-B
IRRITROL SOLID STATE CONTROLLER



RAINBIRD PESB ELECTRIC VALVE



RISER MOUNT ASSEMBLY



DESIGNED BY: *dlb*
DRAWN BY: *dlb*
CHECKED BY: *E.S.G.*

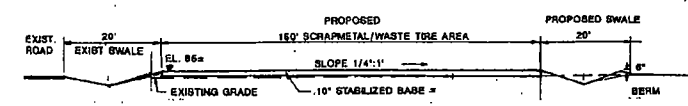
[Signature]
DATE: 9/16/14

STEVEN A. BUTCH
P.L.L.C. ENGINEER REG. NO. 38114
DATE:

Engineering Planning
Landscape Architecture
Environmental Sciences

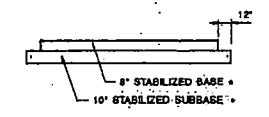


Record Drawing

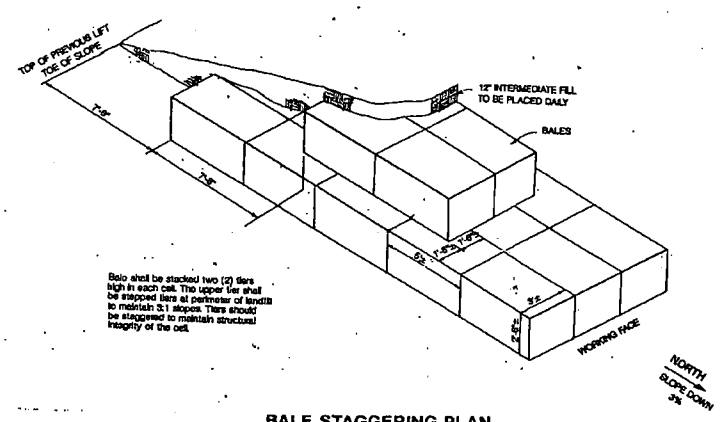


TYPICAL SECTION THROUGH SCRAPMETAL/WASTE TIRE AREA

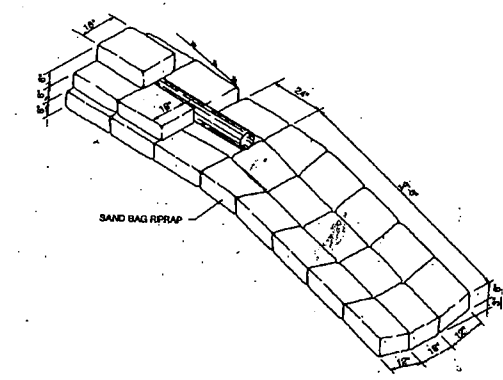
- The stabilized base shall be at the depth shown and may be either Soil Cement (per FDOT Section 270) or Shell Base (per FDOT 280) of Standard Specifications for Road and Bridge Construction 1991.
- The stabilized sub-base shall be per FDOT Section 160 of Specifications for Road and Bridge Construction 1991.



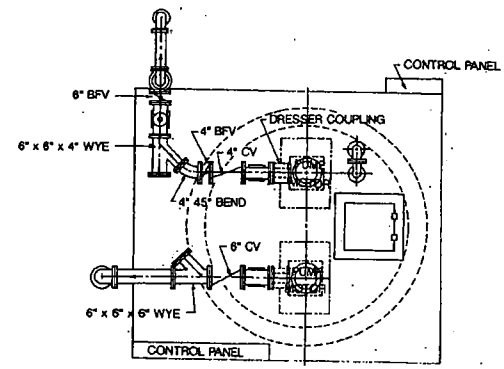
TYPICAL ROAD CROSS SECTION



BALE STAGGERING PLAN

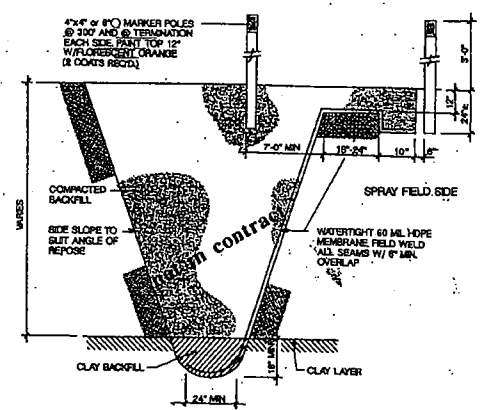


TYPICAL OUTFALL DETAIL

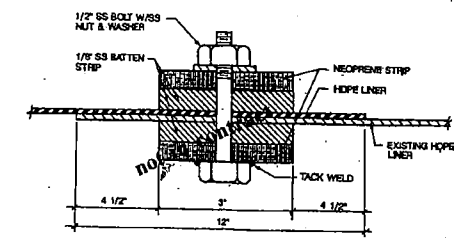


- PROVIDE ONE (1) 1 HP. VERTICAL TURBINE MULTI-BOWL PUMP WITH A CAPACITY OF 90 GPM AND A DISCHARGE HEAD OF 184 FEET.
- COLUMN SHALL EXTEND TO THE SAME ELEVATION AS THE EXISTING PUMP.
- PROVIDE INLET SCREEN.

EXISTING IRRIGATION PUMP STATION MODIFICATIONS



SIDEWALL EXTENTION DETAIL

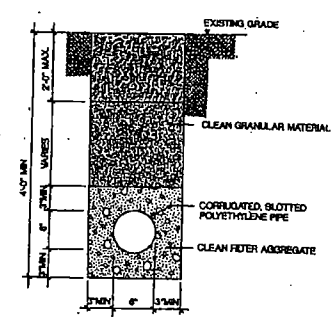


- NOTE
- BATTENS TO BE PLACED CONTINUOUS OVER THE ENTIRE EXPOSED END OF THE EXISTING LINER.
 - EXISTING HOPE LINER TO BE THOROUGHLY CLEANED PRIOR TO MAKING CONNECTION.
 - BOLTS TO BE PLACED ON 16\"/>

CONNECTION TO SIDEWALL DETAIL

FILTER AGGREGATE
U. S. SIEVE % PASSING

3"	MAX SIZE
3/8"	80-100
NO. 4	80-80
NO. 10	30-70
NO. 20	0-40
NO. 40	0-15

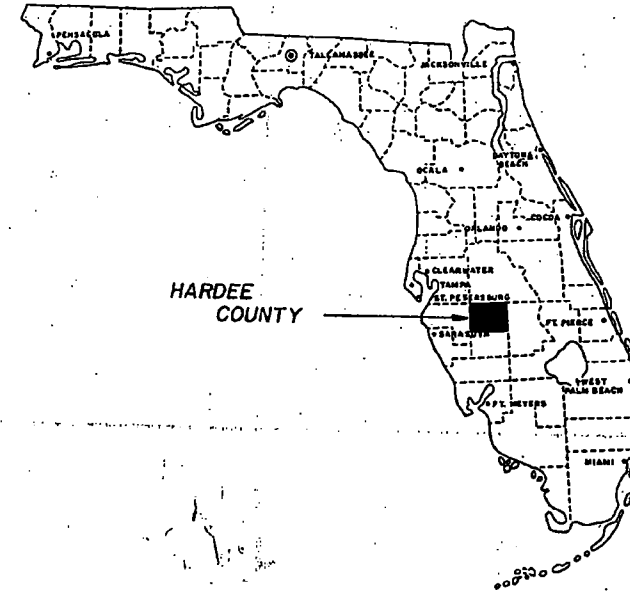
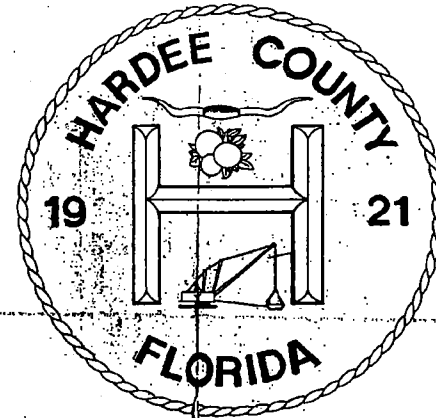
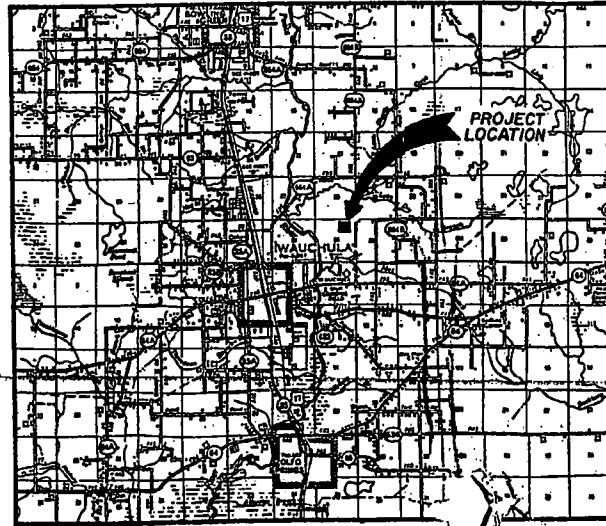


SPRAY COLLECTION SEWER TRENCH DETAIL

BRILEY, WILD & ASSOCIATES, INC.

**HARDEE COUNTY
SANITARY LANDFILL IMPROVEMENTS**

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS



COMMISSIONERS
MAURICE HENDERSON
SAMUEL L. RAWLS
BENNY W. ALBRITTON
ROLAND L. SKIPPER
JAMES O. MOYE
COUNTY ATTORNEY
GARY ALAN VORBECK

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1	COVER SHEET & INDEX OF DRAWINGS
2	EXISTING SITE PLAN
3	LEACHATE COLLECTION AND SPRAY IRRIGATION SYSTEM
4	LEACHATE COLLECTION DETAILS
5	IRRIGATION PUMP STATION
6	ELECTRICAL & MISCELLANEOUS DETAILS
7	STORMWATER MANAGEMENT PLAN
8	STORMWATER MANAGEMENT PLAN DETAILS

FILE COPY ONLY COPY

D.E.P.
 JUN - 6 1997
 TAMPA

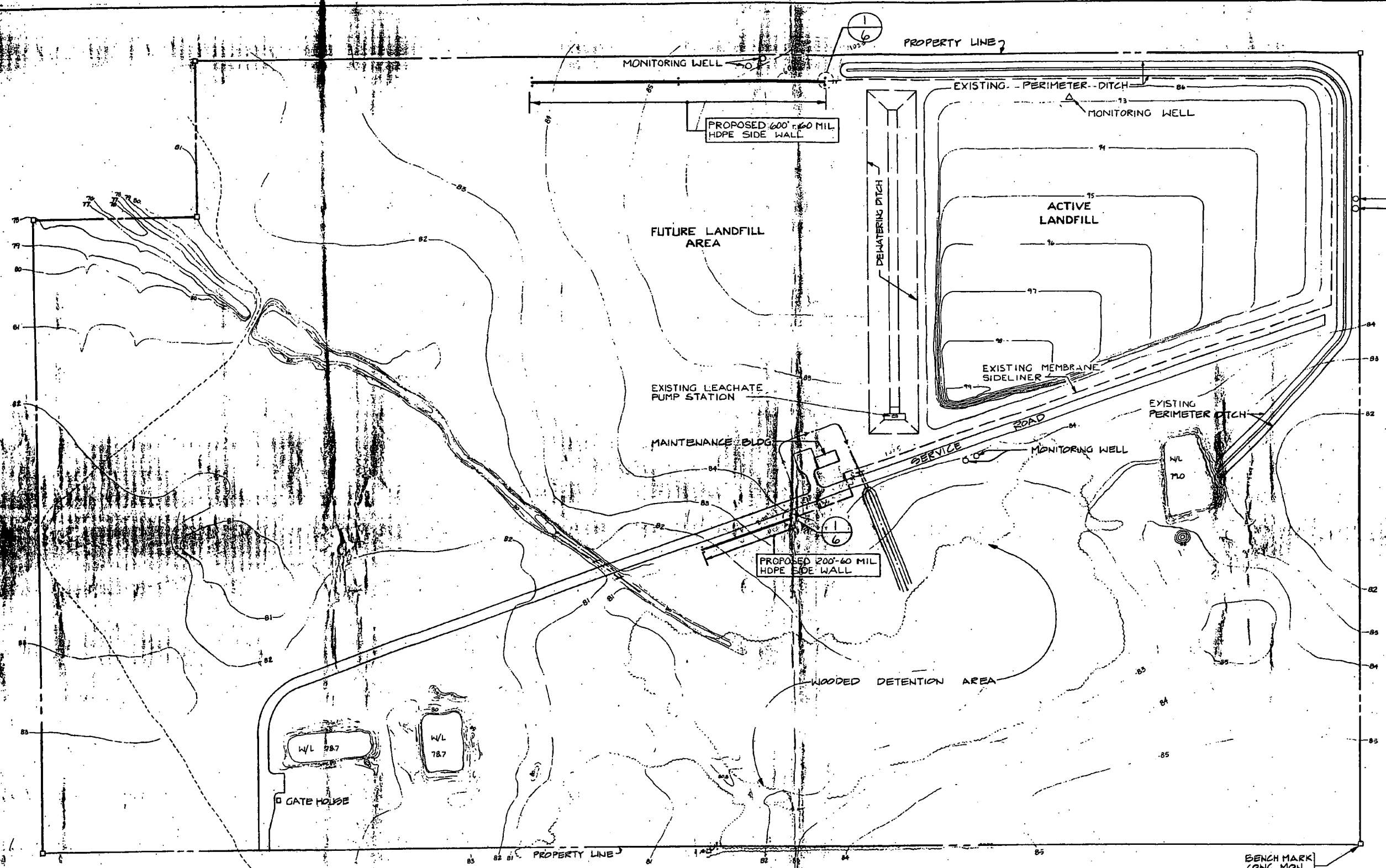
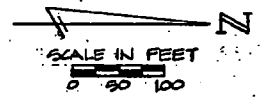
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P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
D	RELEASED FOR CONSTRUCTION
R	REVISED DESTROY PREVIOUS PRINTS
H	PORTION(S) BEING HELD
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

NO.	DATE	REVISION	BY	CHECKED

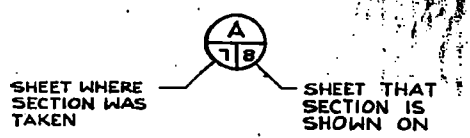
Briley, Wild & Associates, Inc.
 CONSULTING ENGINEERS AND PLANNERS
 Ormond Beach - Clearwater - Bradenton - Orlanoo, Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
 COVER SHEET & INDEX OF DRAWINGS
 HARDEE COUNTY, FLORIDA

DATE: MARCH 1987
 SCALE: NONE
 SHEET NO. 1 OF 8
 PROJ. NO. 86073-6
 FILE NO. 12363



LEGEND



SECTION DESIGNATION



DETAIL CALLOUT

ABBREVIATIONS

- CMP Corrugated Metal Pipe
- CSPE Corrugated Slotted Polyethylene Pipe
- HDPE High Density Polyethylene
- PVC Polyvinylchloride Pipe

RECORD DRAWING

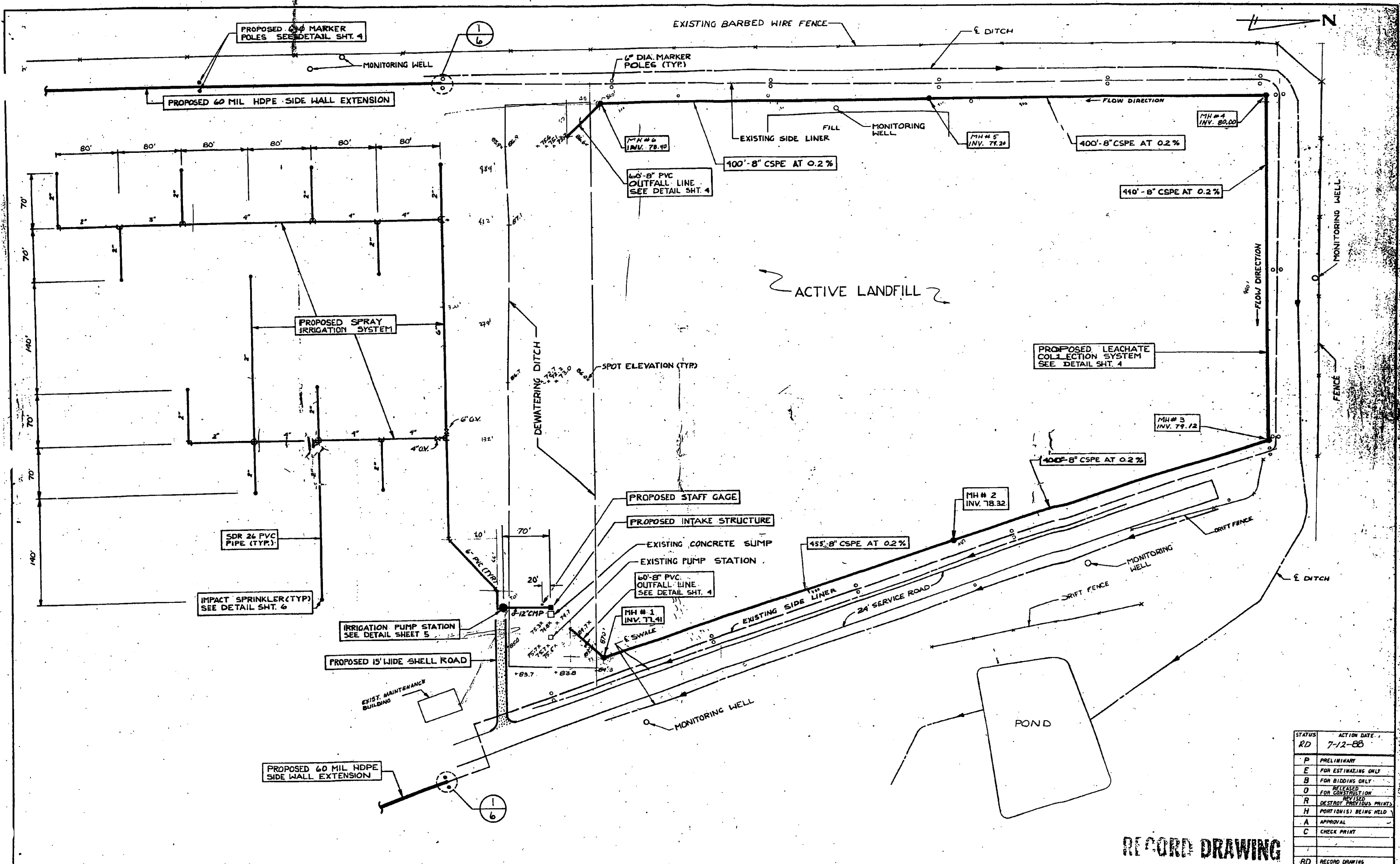
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E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
O	RELEASED FOR CONSTRUCTION
R	DESTROY PREVIOUS PRINTS
H	PORTION(S) BEING MADE
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

REV	DATE	REVISION	BY	CHECKED	JWC

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 Ormond Beach - Clearwater - Bradenton - Orlando, Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
 EXISTING SITE PLAN
 HARDEE COUNTY, FLORIDA

DATE: MARCH 1987	PROJ. NO. 86073-6
SCALE: 1"=100'	FILE NO. 12364
SHEET NO. 2 OF 8	



STATUS	ACTION DATE
RD	7-12-86
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
D	RELEASED FOR CONSTRUCTION
R	REVISED DESTROY PREVIOUS PRINTS
H	PORTION(S) BEING HELD
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

RECORD DRAWING

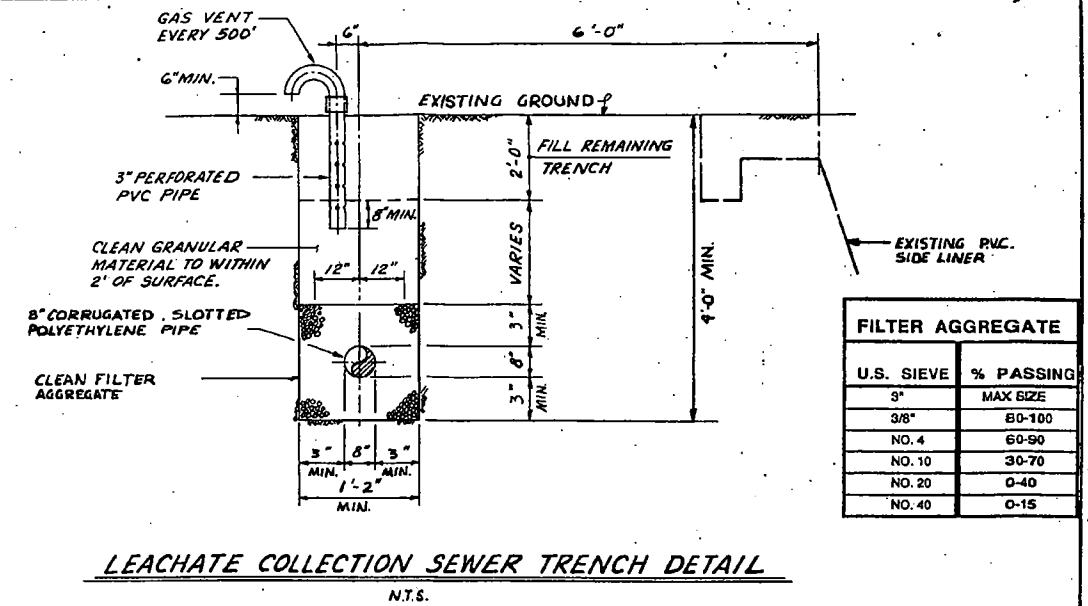
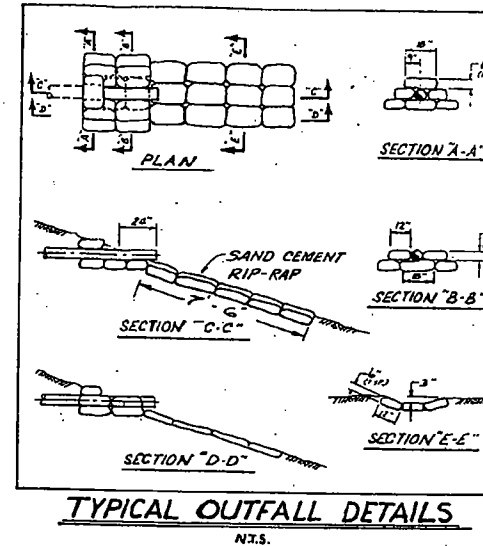
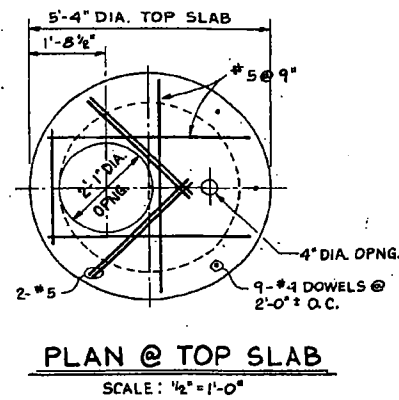
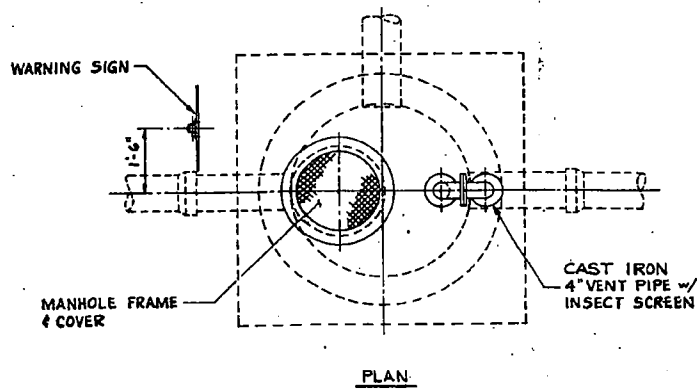
REV. NO.	DATE	REVISION	BY	CHECKED

DESIGNED: LAP
 DRAWN: TDC
 CHECKED: JWC
 SUBMITTED: [Signature]
 APPROVED: [Signature]
 COPYRIGHT © 1987 ALL RIGHTS RESERVED
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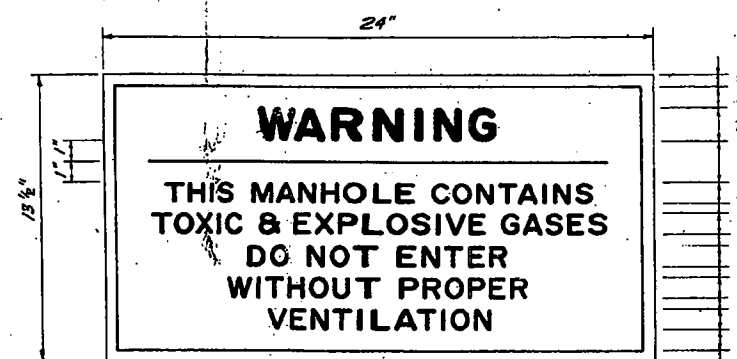
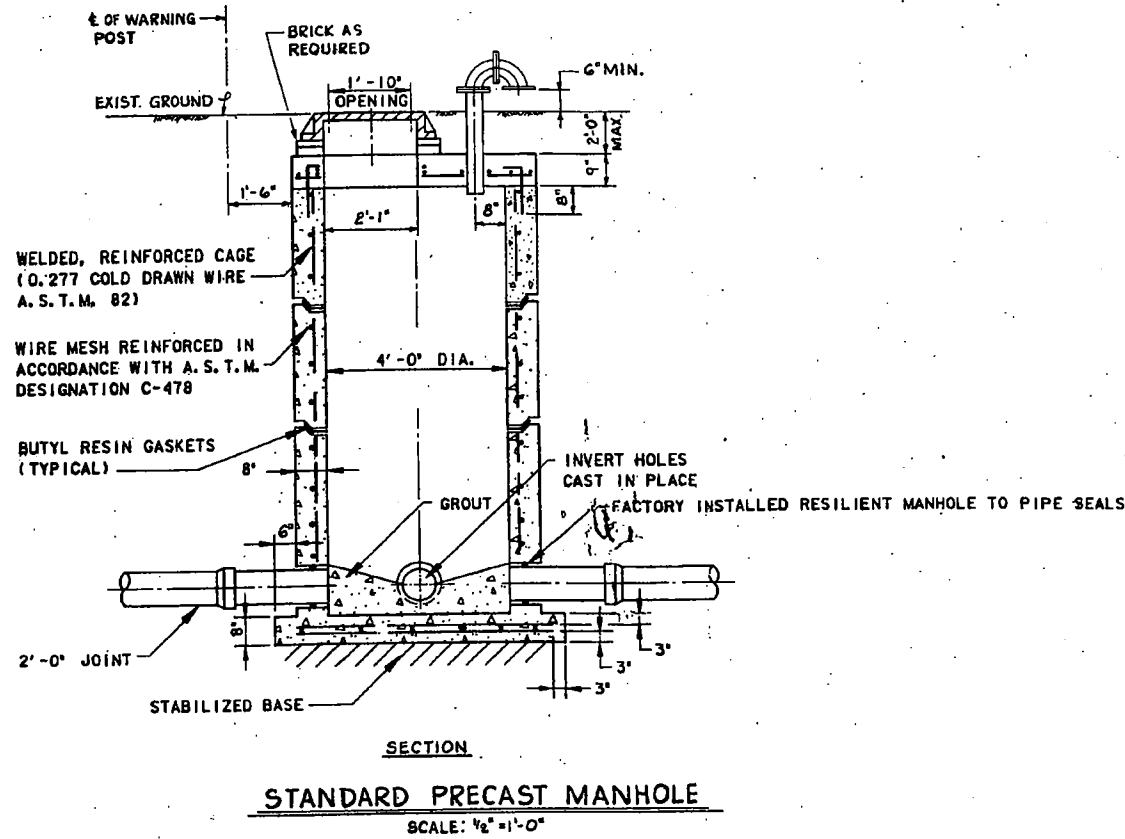
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 Ormond Beach - Clearwater - Bradenton - Orlando, Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
 LEACHATE COLLECTION AND SPRAY IRRIGATION SYSTEM
 HARDEE COUNTY, FLORIDA

DATE: MARCH 1987
 SCALE: 1"=50'
 SHEET NO. 3 OF 6
 PROJ. NO. 86073-6
 FILE NO. 12385



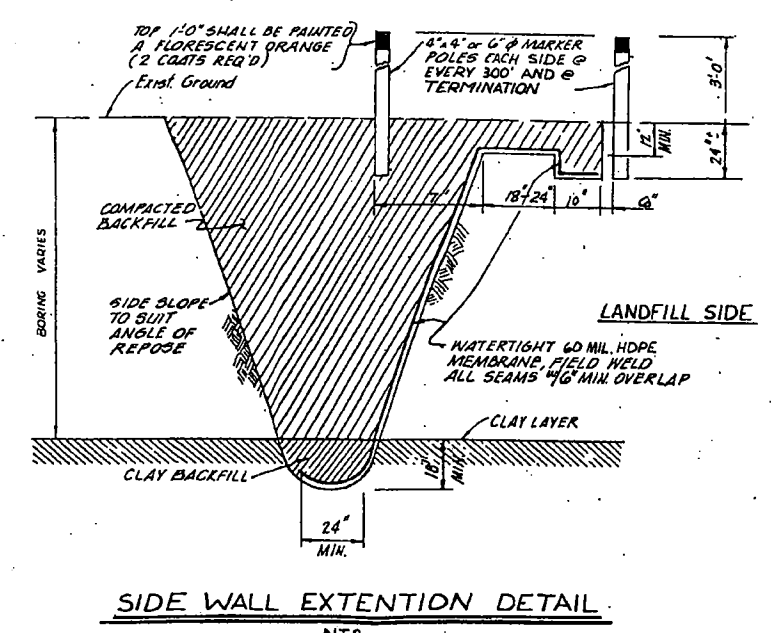
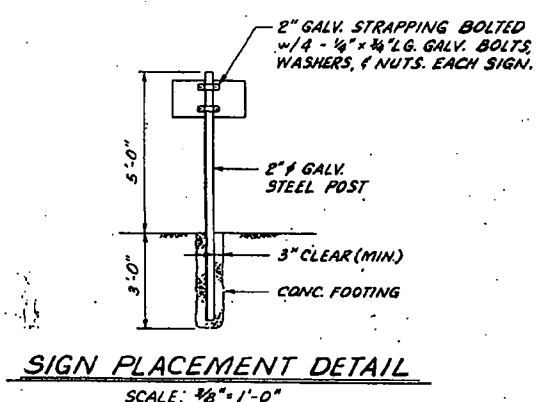
FILTER AGGREGATE	
U.S. SIEVE	% PASSING
3"	MAX SIZE
3/8"	80-100
NO. 4	60-90
NO. 10	30-70
NO. 20	0-40
NO. 40	0-15



NOTES:

1. THE COLOR OF THE SIGN SHALL BE HIGH INTENSITY SILVER-WHITE REFLECTORIZED BACKGROUND WITH RED OPAQUE BORDER AND LEGEND. SIGN PANEL SHALL BE 0.08 IN. MIN. THICK ALUMINUM. PANELS ARE TO BE DEGREASED, ETCHED, NEUTRALIZED AND TREATED WITH ALDINE 1200, IRIDINE 14-2, BOMDERITE T21 OR EQUAL. NO STENCILING PERMITTED ON PANELS.
2. PLACE 13 1/2" x 24" SIGNS AS SHOWN ON SIGN PLACEMENT DETAIL THIS SHEET. (6 REQUIRED)

WARNING SIGN DETAIL
SCALE: 3" = 1'-0"



NOTE:
MANHOLE FRAMES AND COVERS SHALL CONFORM TO A.S.T.M. DESIGNATION A 48-(1971) OR FEDERAL SPECIFICATIONS 00-1-652B. COMBINED WEIGHT SHALL BE NOT LESS THAN 305 POUNDS, COVER = 145 LBS., FRAME = 160 LBS.

NOTES:

1. INVERT HOLES TO BE CAST IN PLACE & 2" LARGER THAN PIPE O.D.
2. ALL CONCRETE USED SHALL BE STRUCTURAL & CONFORM TO OR EXCEED REQUIREMENTS OF A.S.T.M. DESIGNATION C-478 FOR PRECAST CONCRETE MANHOLES.

STATUS	ACTION DATE
RD	7-12-88
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
O	RELEASED FOR CONSTRUCTION
R	DESTROY PREVIOUS PRINTS
H	PORTION(S) BEING HELD
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

REV. NO.	DATE	REVISION	BY	CHECKED

DESIGNED: LAP
DRAWN: TDC
CHECKED: JWC

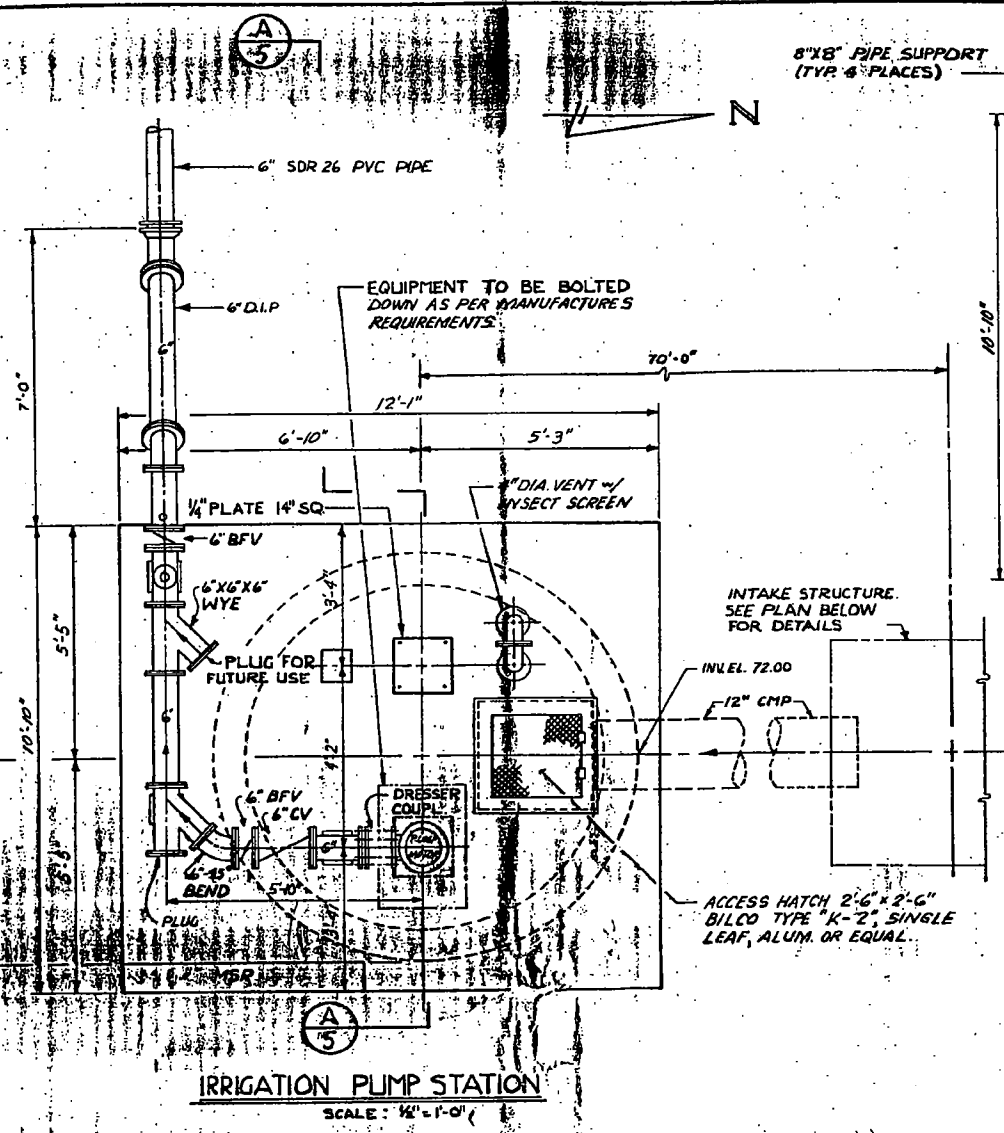
SUBMITTED BY: [Signature]
APPROVED: [Signature]

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CONSULTING ENGINEERS AND PLANNERS
Ormond Beach - Clearwater - Bradenton - Orlando, Florida

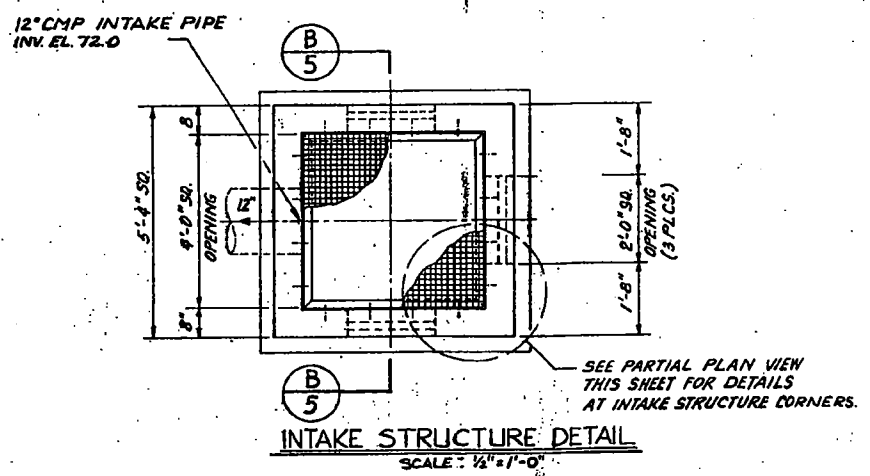
HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
LEACHATE COLLECTION DETAILS
HARDEE COUNTY, FLORIDA

DATE: MARCH 1987
SCALE: AS SHOWN
SHEET NO. 4 OF 8

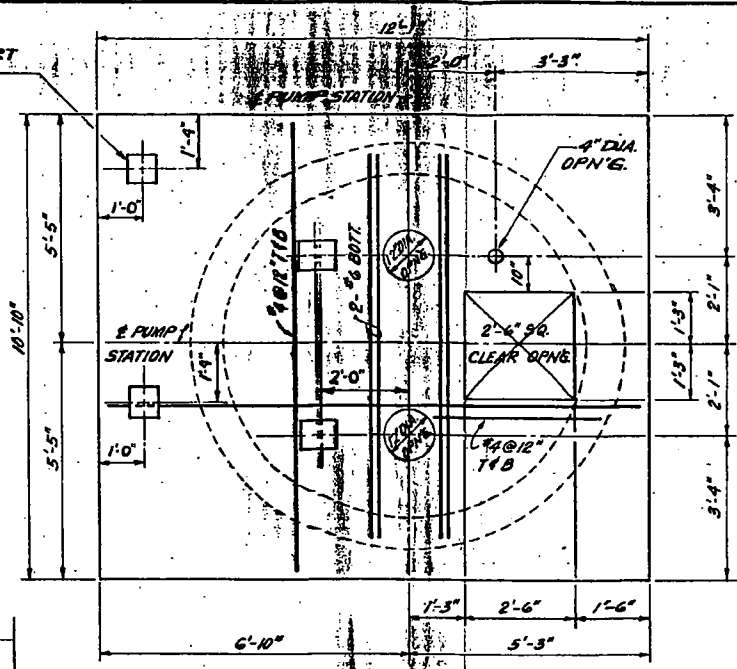
PROJ. NO. 86073-6
FILE NO. 12366



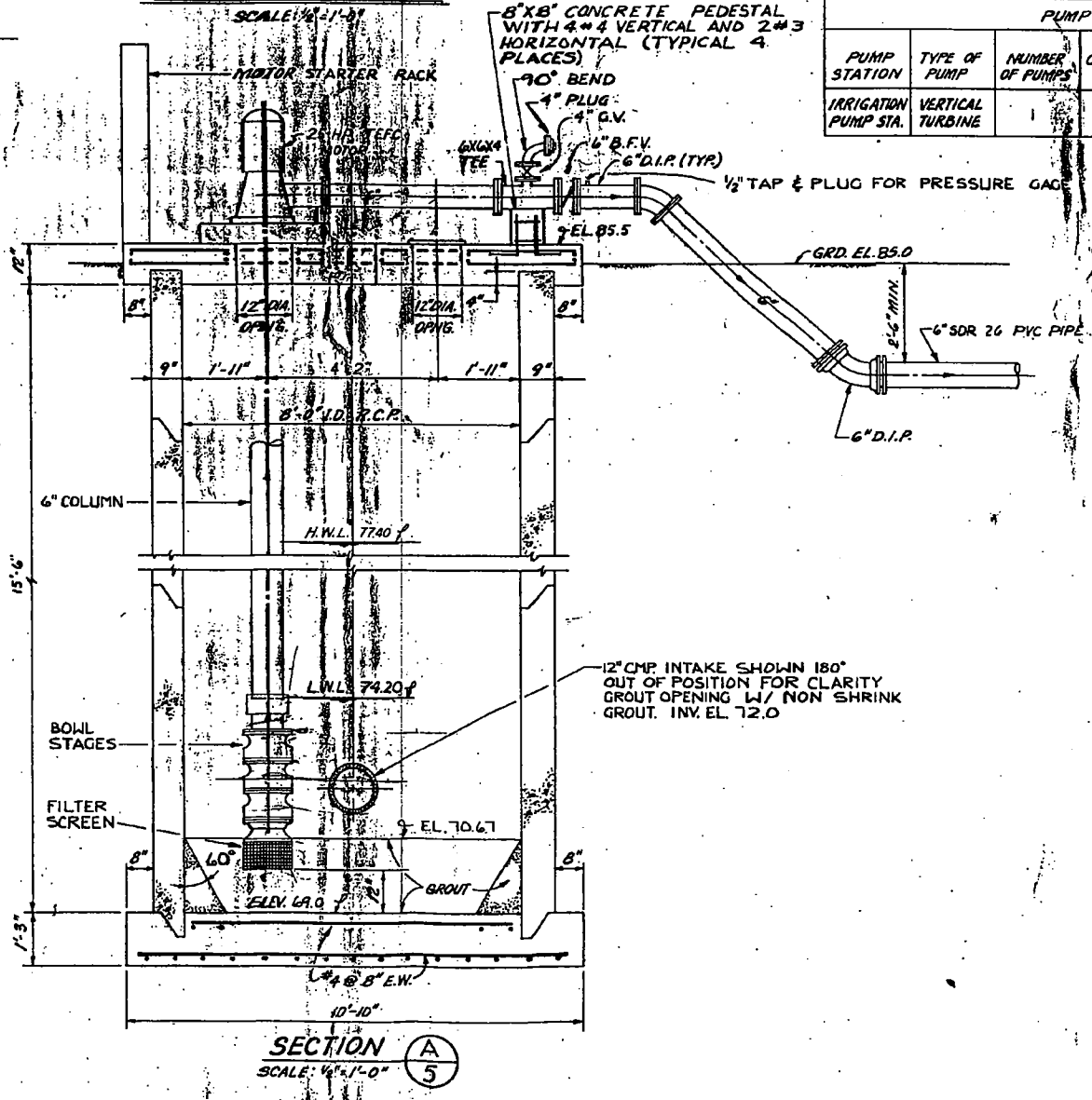
IRRIGATION PUMP STATION
SCALE: 1/2"=1'-0"



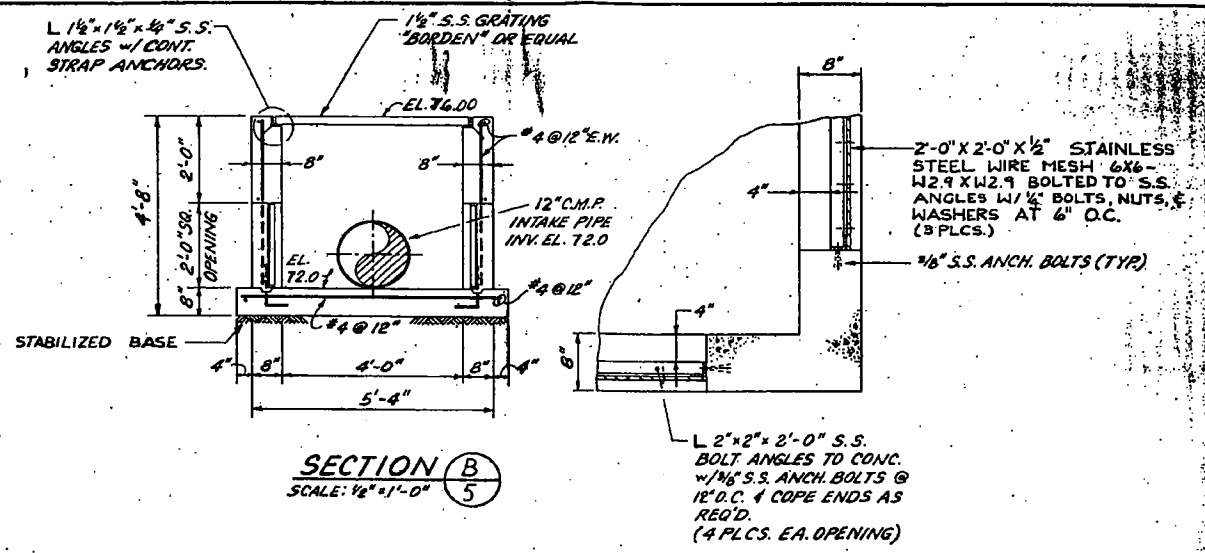
INTAKE STRUCTURE DETAIL
SCALE: 1/2"=1'-0"



PLAN @ TOP SLAB
SCALE: 1/2"=1'-0"



SECTION A
SCALE: 1/2"=1'-0"



PARTIAL PLAN @ ELEV. 73.0
SCALE: 1"=1'-0"

PUMP DATA						
PUMP STATION	TYPE OF PUMP	NUMBER OF PUMPS	PUMP CAPACITY G.P.M.	TDH FEET	MAX. RPM	MIN. H.P.
IRRIGATION PUMP STA.	VERTICAL TURBINE	1	370	164	1770	25

STATUS	ACTION DATE
RD	7-12-86
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
O	RELEASED FOR CONSTRUCTION
R	REVISION
H	DESTROY PREVIOUS PRINTS
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

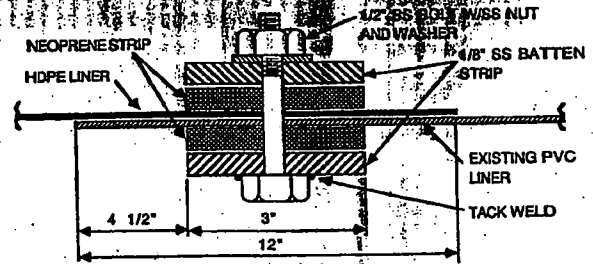
D.E.P.
JUN - 6 1997

DESIGNED: LAP
DRAWN: TDC
SUBMITTED: WILD, WILD & ASSOCIATES
APPROVED: [Signature]

Briley, Wild & Associates, Inc.
CONSULTING ENGINEERS AND PLANNERS
Ormond Beach - Clearwater - Bradenton - Orlando - Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
IRRIGATION PUMP STATION
HARDEE COUNTY, FLORIDA

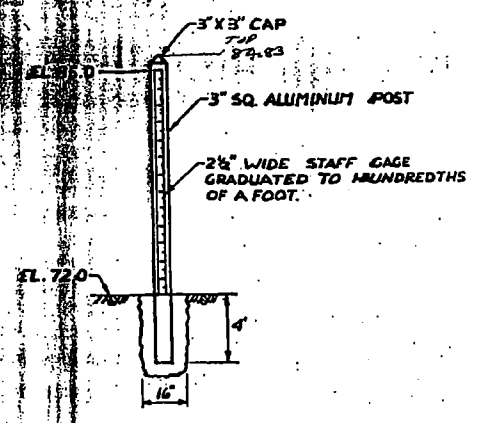
DATE: MARCH 1987
SCALE: AS SHOWN
SHEET NO. 5 OF 8
PROJ. NO. 86073-6
FILE NO. 12387



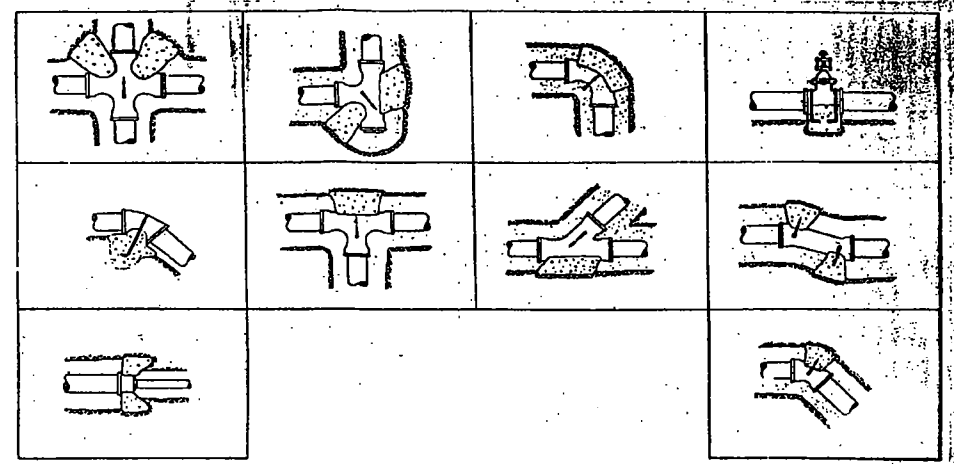
CONNECTION TO EXISTING LINER

- NOTE:
1. EXISTING PVC LINER TO BE THOROUGHLY CLEANED PRIOR TO MAKING CONNECTION.
 2. BATTENS TO BE PLACED CONTINUOUS OVER THE ENTIRE EXPOSED END OF THE EXISTING LINER.
 3. BOLTS TO BE PLACED ON 16\"/>

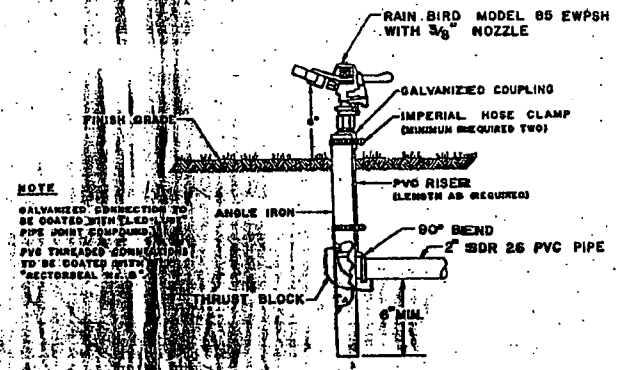
DETAIL 6.11
N.T.S.



STAFF GAGE
N.T.S.



TYPICAL THRUST BLOCK DETAILS

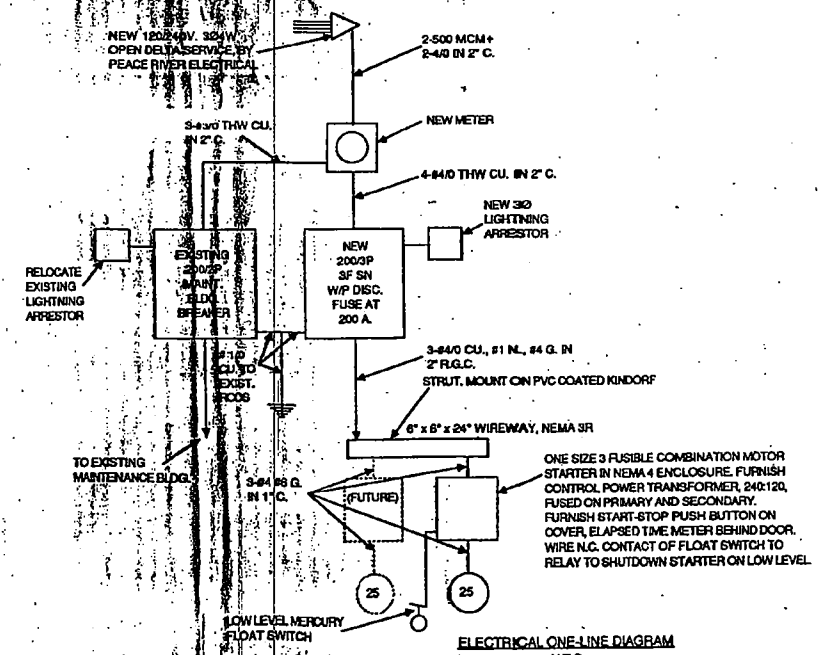


TYPICAL SPRINKLER HEAD DETAIL
N.T.S.

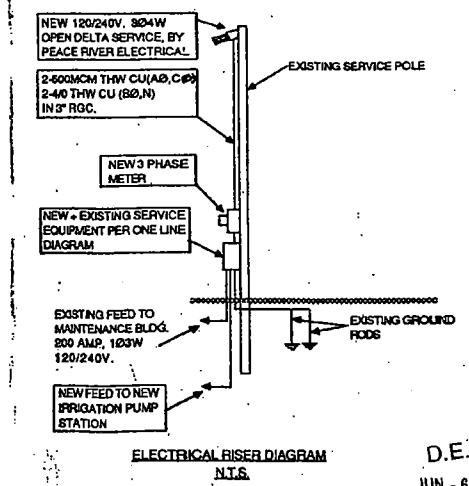
BEARING AREA TABLE (SQUARE FEET)

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
1 1/2"	0.22	0.31	0.17	0.09
2"	0.34	0.48	0.26	0.13
2 1/2"	0.50	0.71	0.38	0.20
3"	0.74	1.04	0.56	0.29
3 1/2"	0.98	1.39	0.74	0.37
4"	1.22	1.75	0.93	0.47
5"	1.65	2.63	1.42	0.72
6"	2.61	3.69	2.00	1.02
8"	4.43	6.26	3.39	1.73
10"	6.88	9.75	5.25	2.69
12"	9.88	13.65	7.59	3.77

THE FIGURES IN THESE TABLES ARE BASED ON 2,000 LBS. PER SQUARE FOOT SOIL BEARING AGAINST THE UNDISTURBED TRENCH WALL AND ARE TO REPRESENT THE MINIMUM VERTICAL PROJECTED AREA OF THE THRUST BLOCK IN A PLANE PERPENDICULAR TO THE LINE BISECTING THE INCLUDED ANGLE OF THE FITTING.



ELECTRICAL ONE-LINE DIAGRAM
N.T.S.



ELECTRICAL RISER DIAGRAM
N.T.S.

STATUS	ACTION DATE
RD	7-12-88
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
D	FOR CONSTRUCTION
R	REVISED PREVIOUS PRINTS
H	PORTION(S) BEING HELD
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

D.E.P.
JUN - 6 1997
TAMPA

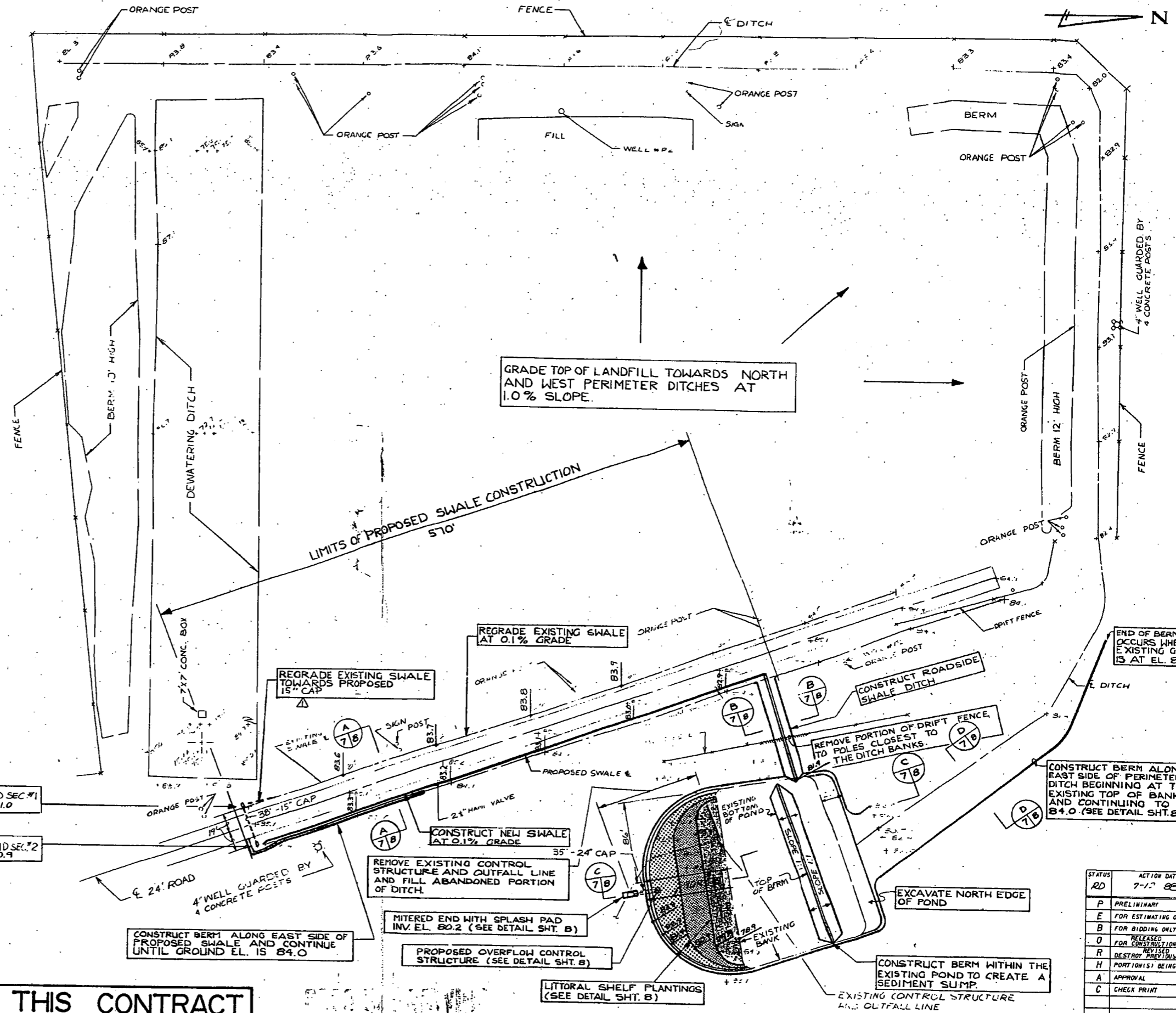
RECORD DRAWING

REV. NO.	DATE	REVISION	BY	CHECKED

Briley, Wild & Associates, Inc.
CONSULTING ENGINEERS AND PLANNERS
Ormond Beach - Clearwater - Bradenton - Orlando, Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
ELECTRICAL & MISCELLANEOUS DETAILS
HARDEE COUNTY, FLORIDA

DATE: MARCH 1987	PROJ. NO. 86073-6
SCALE: NONE	FILE NO. 12368
SHEET NO. 6 OF 8	



GRADE TOP OF LANDFILL TOWARDS NORTH AND WEST PERIMETER DITCHES AT 1.0% SLOPE.

LIMITS OF PROPOSED SWALE CONSTRUCTION
570'

LEGEND

- + EXISTING ELEVATION
- PROPOSED ELEVATION
- [Hatched Box] MAIDENCANE
- [Dotted Box] PICKEREL WEED
- [Cross-hatched Box] YELLOW POND LILY
- CAP CORRUGATED ALUMINUM PIPE

MITERED END SEC. #1
INV. EL. 81.0

MITERED END SEC. #2
INV. EL. 80.9

REGRADE EXISTING SWALE TOWARDS PROPOSED 15" CAP

REGRADE EXISTING SWALE AT 0.1% GRADE

CONSTRUCT NEW SWALE AT 0.1% GRADE 35" - 24" CAP

REMOVE EXISTING CONTROL STRUCTURE AND OUTFALL LINE AND FILL ABANDONED PORTION OF DITCH.

MITERED END WITH SPLASH PAD INV. EL. 80.2 (SEE DETAIL SHT. B)

CONSTRUCT BERM ALONG EAST SIDE OF PROPOSED SWALE AND CONTINUE UNTIL GROUND EL. IS 84.0

PROPOSED OVERFLOW CONTROL STRUCTURE (SEE DETAIL SHT. B)

LITTORAL SHELF PLANTINGS (SEE DETAIL SHT. B)

REMOVE PORTION OF DRIFT FENCE TO POLES CLOSEST TO THE DITCH BANKS.

EXCAVATE NORTH EDGE OF POND

CONSTRUCT BERM WITHIN THE EXISTING POND TO CREATE A SEDIMENT SUMP.

CONSTRUCT BERM ALONG EAST SIDE OF PERIMETER DITCH BEGINNING AT THE EXISTING TOP OF BANK AND CONTINUING TO EL. 84.0 (SEE DETAIL SHT. B)

STATUS	ACTION DATE
RD	7-17-83
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
O	RELEASED FOR CONSTRUCTION
R	DESTROY PREVIOUS PRINT
H	PORTION(S) BEING HELD
A	APPROVAL
C	CHECK PRINT
RD	RECORD DRAWING

NOT PART OF THIS CONTRACT

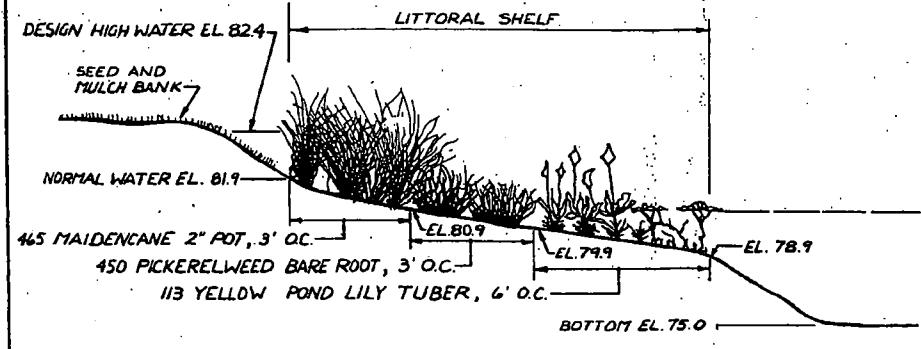
REV. NO.	DATE	REVISION	BY	CHECKED	JWC
1	7/28/83	ADDITION OF MITERED END SECTIONS	MTD	TDC	JWC

Briley, Wild & Associates, Inc.
CONSULTING ENGINEERS AND PLANNERS
Ormond Beach - Clearwater - Bradenton - Orlando, Florida

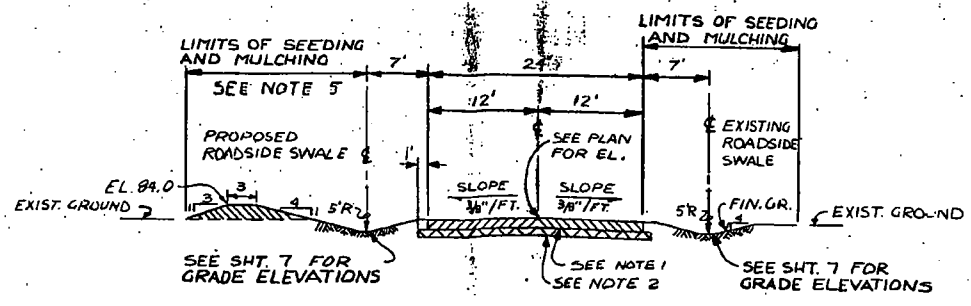
HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
STORMWATER MANAGEMENT PLAN
HARDEE COUNTY, FLORIDA

DATE: MARCH 1987
SCALE: 1"=50'
SHEET NO. 7 OF 8

PROJ. NO. 86073-6
FILE NO. 12369



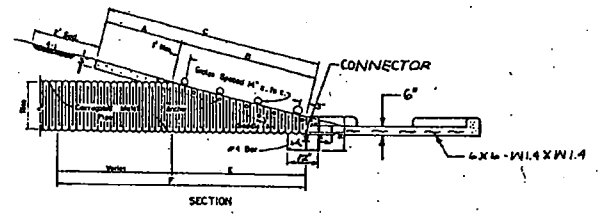
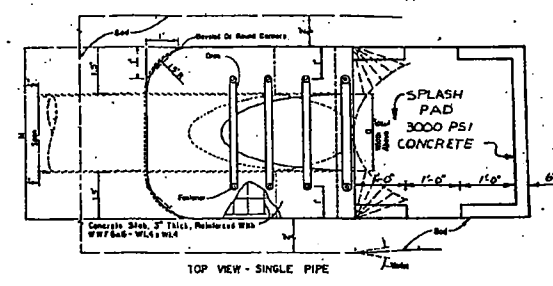
- CROSS SECTION -
LITTORAL SHELF PLANTINGS (7/8)
N.T.S.



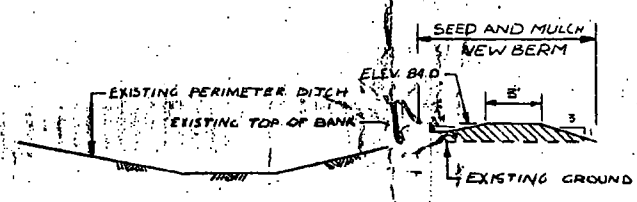
NOTE: ROADSIDE SWALES TO HAVE ROUNDED BOTTOMS AS SHOWN.
TYPICAL SERVICE ROAD SWALES AND ROAD REPLACEMENT (A/7/8)
1"=10'

- NOTES:
- 8" SHELL ROCK OR LIME ROCK BASE (F.B.V. 100).
 - 8" STABILIZED SUB-BASE (95% AASHTO T-180) W/F.B.V. 60.
 - ROADSIDE SWALES SHALL BE CONSTRUCTED OR REGRADED WHERE SHOWN ON OVERALL SITE PLAN.
 - SLOPE AT 4:1 FROM SWALE CENTERLINE UP TO EXISTING GROUND AND CONSTRUCT BERM TO ELEV. 84.0 WHEN EXISTING GROUND IS LESS THAN ELEV. 84.0.
 - SEED AND MULCH 5' BEYOND THE EDGE OF SWALE OR TO THE EDGE OF THE NEW BERMS AS REQUIRED.

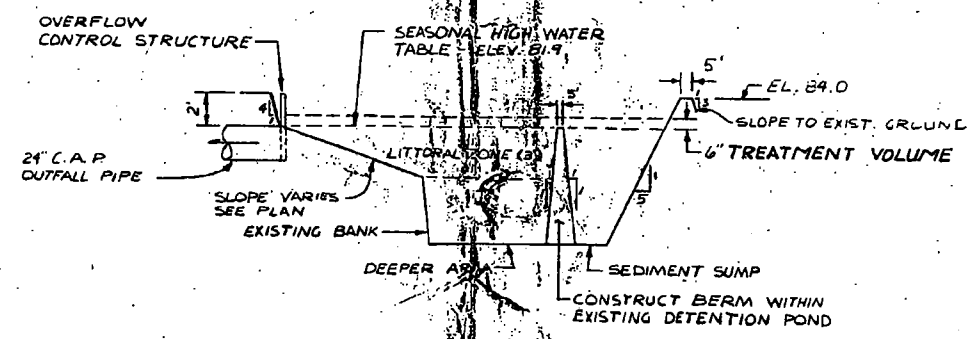
D	X	A	B	C	E	F	G	M	N
24'	3'-5"	2.5'	6.18'	8.68'	6.0'	10.0'	1.73'	5.08'	1.08'



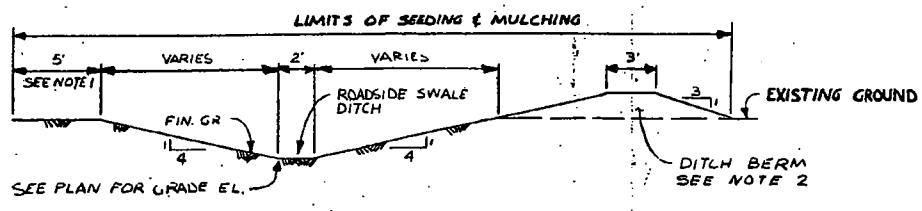
24" MITERED END SECTION W/ SPLASH PAD (7/8)
N.T.S.



PERIMETER DITCH BERM (D/7/8)
1"=5'

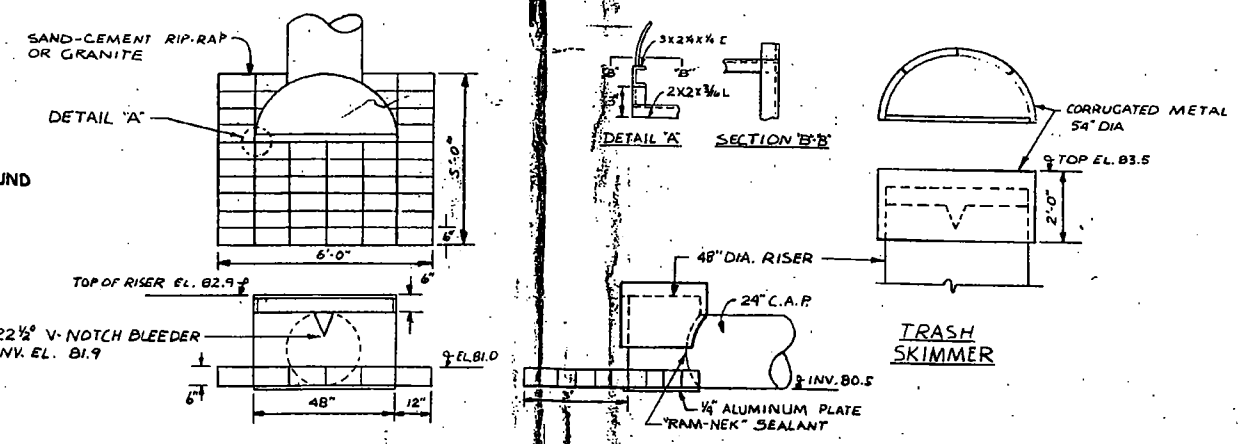


POND CROSS-SECTION (C/7/8)
HORIZ. C. 1"=50'
VERT. 1"=5'

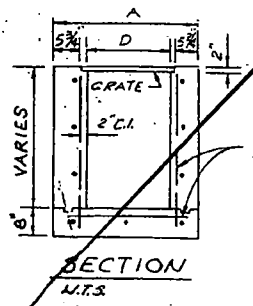
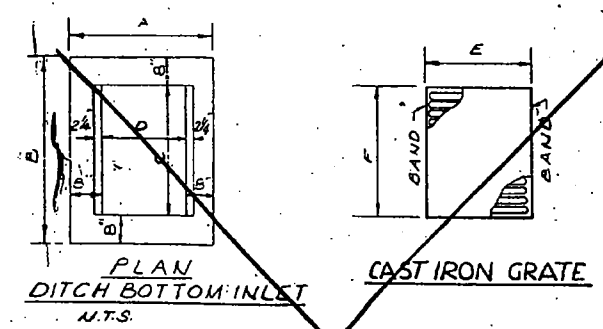


ROADSIDE SWALE DITCH (B/7/8)
1"=5'

- NOTES:
- FOR EXISTING GROUND ELEVATION 84.0 OR GREATER; SLOPE AT 4:1 TO EXISTING GROUND. SEED AND MULCH TO 5' BEYOND TOP OF BANK.
 - FOR EXISTING GROUND ELEVATION 84.0 OR LESS; SLOPE AT 4:1 TO ELEVATION 84.0 AND CONSTRUCT BERM. SEED AND MULCH TO EDGE OF BERM FARTHEST FROM TOP OF BANK.



OVERFLOW CONTROL STRUCTURE (7/8)
N.T.S.



CATCH BASIN DETAILS (7/8)
N.T.S.

CATCH BASIN SCHEDULE

TYPE	A	B	C	D	E	F
C	3'-4"	4'-5"	3'-1"	2'-0"	2'-4"	3'-0"

STATUS	ACTION DATE
RD	7-12-88
P	PRELIMINARY
E	FOR ESTIMATING ONLY
B	FOR BIDDING ONLY
O	RELEASED FOR CONSTRUCTION
R	REVISED
H	DESTROY PREVIOUS PRINTS
A	APPROVAL
C	CHECK PRINT

D.E.P.
JUN - 6 1997
TAMPA

RECORD DRAWING

NOT PART OF THIS CONTRACT

DESIGNED	MTD	SUBMITTED BY	MTD
DRAWN	TDC	APPROVED	MTD
CHECKED	JWC	COPYRIGHT	© 1987 ALL RIGHTS RESERVED

Briley, Wild & Associates, Inc.
CONSULTING ENGINEERS AND PLANNERS
Ormond Beach - Clearwater - Bradenton - Orlando, Florida

HARDEE COUNTY SANITARY LANDFILL IMPROVEMENTS
STORMWATER MANAGEMENT PLAN DETAILS
HARDEE COUNTY, FLORIDA

DATE	MARCH 1987	PROJ. NO.	86073-6
SCALE	AS SHOWN	FILE NO.	12370
SHEET NO.	8 OF 8		

ENVISORS, INC.

**HARDEE COUNTY
SANITARY LANDFILL**

NOVEMBER 1982

Hardee County Sanitary Landfill

For

Board Of County Commissioners

MAURICE HENDERSON	CHAIRMAN
SAMUEL A. RAWLS	VICE-CHAIRMAN
BENNY W. ALBRITTON	COMMISSIONER
ROLAND L. SKIPPER	COMMISSIONER
JOHN ROY GOUGH	COMMISSIONER
HARRY B. LAMPE, P.E.	COUNTY ADMINISTRATOR & COUNTY ENGINEER
JEFFREY J. MCKIBBEN	COUNTY ATTORNEY

SHEET INDEX

CONTRACTOR CONSTRUCTION DRAWINGS

- 1.) COVER SHEET
- 2.) GENERAL NOTES & VICINITY MAP
- 3.) SOILS INFORMATION
- 4.) SOILS INFORMATION
- 5.) PHASE I SITE PLAN
- 6.) CONSTRUCTION DETAILS
- 7.) DEWATERING STATION AND DETAILS
- 8.) GATE HOUSE, SITE PLAN AND DETAILS
- 9.) GATE HOUSE, EXTERIOR ELEVATIONS
- 10.) MAINTENANCE BLDG., SITE PLAN & DETAILS
- 11.) WELL & MISC. DETAILS
- 12.) MONITORING WELL DETAILS
- 13.) FENCING
- 14.) WATER STANDARD DETAILS

85.76
87.66
80.76
84.72
80.46

REC
JUN 6 1997

RECORD DRAWING

NOTE: The information presented herein is based upon drawings, specifications, addenda, shop drawings, modifications, etc. furnished by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.

The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted herein.

FILE COPY - DAILY COPY

Engineering
ENVISORS, Inc.
ad

MARGATE • TAMPA • WINTER HAVEN, FLORIDA

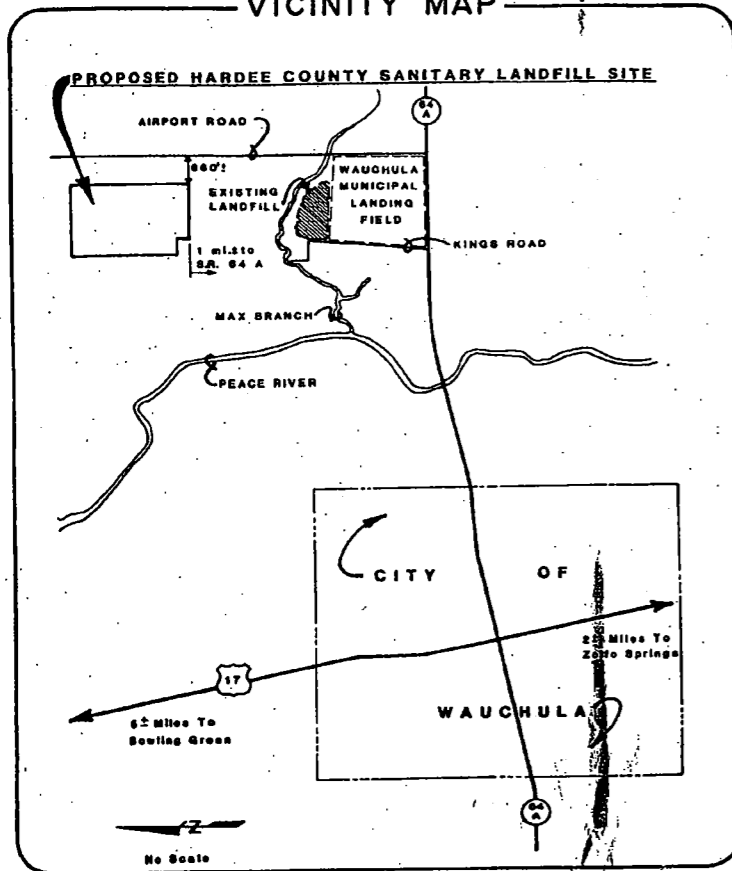
CONSULTING ENGINEERS

D.E.P.
JUN - 6 1997

DOUGLAS M. DARDEN
FLORIDA PROFESSIONAL ENGINEER NO. 13097
PROJECT NO. 81014-82(1)
DATE NOVEMBER 1982

SET NO.

VICINITY MAP



GENERAL NOTES

- 1) LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE DRAWINGS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO CONSTRUCTION.
- 2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICT BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED DURING THE COURSE OF CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THESE DRAWINGS.
- 3) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE PRIOR TO BIDDING THE WORK AND TO PERFORM SUCH TESTS, STUDIES, AND SURVEYS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO THE ACTUAL SURFACE AND SUBSURFACE CONDITIONS EXISTING AT THE SITE. ACTUAL CONDITIONS DIFFERENT FROM THOSE SHOWN ON THE DRAWINGS SHALL NOT CONSTITUTE GROUNDS FOR AN EXTRA.
- 4) ALL CONCRETE SHALL BE 3,750 PSI UNLESS OTHERWISE INDICATED AND SHALL BE IN CONFORMANCE WITH THE LATEST A.C.I. CODE REQUIREMENTS.
- 5) ALL ELEVATIONS ARE REFERRED TO THE MEAN SEA LEVEL DATUM OF THE NATIONAL GEODETIC DATUM.
- 6) ALL COMPACTED BACKFILL, WHERE INDICATED, SHALL BE COMPACTED IN EIGHT (8") MAXIMUM LAYERS AT 95 PERCENT DENSITY OF THE ORIGINAL UNDISTURBED MATERIAL IN CONFORMANCE WITH ASTM D1557, METHOD "A".
- 7) ALL HOSE BIBBS SHOWN ON PLANS SHALL RECEIVE AN ANTI-SIPHON VACUUM BREAKER, WATTS SERIES 288A OR EQUAL.
- 8) FINISHED GRADE FOR GROUND ELEVATIONS ON DRAWINGS REFER TO GRADE AFTER SOODING.
- 9) THE CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE VARIOUS UTILITY COMPANIES IN ORDER TO PERMIT THE LOCATION OF EXISTING UNDERGROUND UTILITIES IN ADVANCE OF CONSTRUCTION.
- 10) AERIAL SURVEY FLOWN ON FEBRUARY 1982. SUBSEQUENT EVENTS MAY HAVE ALTERED INFORMATION PRESENTED HEREON AND NEITHER THE COUNTY NOR THE ENGINEER MAY BE HELD RESPONSIBLE FOR SUCH CHANGES. THE CONTRACTOR IS REQUESTED TO VERIFY ALL FIELD CONDITIONS AND ADVISE THE ENGINEER OF ANY CHANGES.
- 11) SUBSURFACE SOILS INFORMATION PRESENTED HEREIN REPRESENTS THE RESULTS OF FIELD WORK AND NEITHER THE ENGINEER NOR THE COUNTY MAY BE HELD RESPONSIBLE OR LIABLE FOR SUBSURFACE CONDITIONS THAT VARY FROM THE INFORMATION PRESENTED HEREIN.
- 12) BOUNDARY SURVEY SHOWN ON PLANS OF TOWNSHIP 33 SOUTH, RANGE 25 EAST, IN SECTION 35, DERIVED FROM SURVEY PERFORMED BY MARK P. PORTER, R.L.S., CHASTAIN-SKILLMAN, INC., LAKELAND FLORIDA, 9 DECEMBER 1981.
- 13) AERIAL PHOTOGRAMMETRY PERFORMED BY KUCERA & ASSOCIATES, INC., FEBRUARY 1982.

POTABLE WATER NOTES

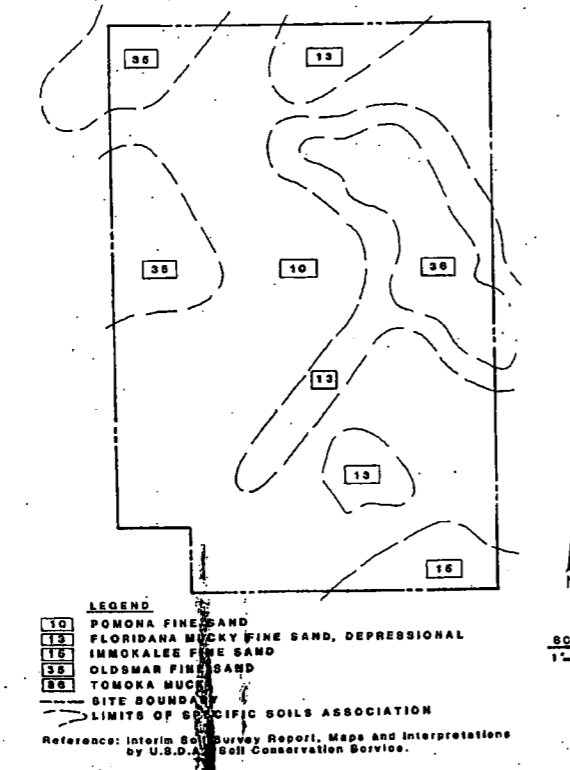
- 1) ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES BELOW FINISHED GRADE AND SHALL BE LOCATED AS SHOWN ON THE DRAWINGS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL WATER FACILITIES AND ACCESSORIES SHALL BE INSTALLED IN CONFORMANCE WITH THE "WATER STANDARDS" DRAWINGS AND THE REQUIREMENTS OF HARDEE COUNTY, THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION (FDEP), AND THE HEALTH DEPARTMENT.
- 2) ALL PIPE, FITTINGS, SPECIALS, AND VALVES, INCLUDING LININGS AND COATINGS, PRESSURE TESTING, DISINFECTION, AND PIPE INSTALLATION SHALL CONFORM TO THE SPECIFICATIONS.
- 3) ALL WATER MAINS, WHERE INDICATED, UNLESS OTHERWISE SHOWN OR DIRECTED, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE WITH PUSH-ON JOINTS. PIPE AND ACCESSORIES SHALL CONFORM TO PRODUCT STANDARDS 22-70 OR ASTM SPECIFICATIONS D-2241 AND D-1784, AS IT APPLIES TO CLASS 12453-B OR 12454-A PVC PLASTIC PIPE, SDR-26 AND A WORKING PRESSURE RATING OF 160 PSI AT 23°C (73.4). PIPE SHALL BE DESIGNED AND LAID IN CONFORMANCE WITH TRENCH LAYING CONDITION TYPE 2.
- 4) ALL GATE VALVES FOUR INCHES (4") TO 12 INCHES SHALL BE RESILIENT SEATED, CAST IRON BODY, AND SHALL BE FURNISHED WITH MECHANICAL JOINT ENDS AND SUITABLE FOR 200 PSI WORKING PRESSURE. GATE VALVES LARGER THAN 12 INCHES AND SMALLER THAN FOUR INCHES (4") SHALL BE OF THE CONVENTIONAL TYPE SUITABLE FOR 150 PSI WORKING PRESSURE AND BE IN CONFORMANCE WITH THE SPECIFICATIONS.
- 5) ALL TEES, CROSSES, BENDS (HORIZONTAL AND VERTICAL), DEFLECTING 11-1/4" OR MORE, PLUGS, FIRE HYDRANTS, AND OTHER APPURTENANCES FOUR INCHES (4") AND LARGER SHALL BE INSTALLED WITH A CONCRETE THRUST BLOCK OF THE SIZE SHOWN ON THE "WATER STANDARDS" DRAWINGS.
- 6) SPECIAL PIPE FOUNDATIONS, IF REQUIRED, SHALL BE DETERMINED IN THE FIELD AND THE TYPE REQUIRED WILL BE AS DIRECTED BY THE ENGINEER OR COUNTY.
- 7) AERIAL SURVEY FLOWN ON FEBRUARY 1982. SUBSEQUENT EVENTS MAY HAVE ALTERED INFORMATION PRESENTED HEREON AND NEITHER THE COUNTY NOR THE ENGINEER MAY BE HELD RESPONSIBLE FOR SUCH CHANGES. PROSPECTIVE BIDDERS ARE REQUIRED TO VERIFY CONDITIONS, ADVISE THE ENGINEER OF ANY CHANGES, AND ACCOUNT FOR ANY CHANGES IN THEIR CONSTRUCTION COST BID.
- 8) ALL FITTINGS FOR PVC OR C.I./D.I. WATER MAINS SHALL BE CAST IRON/DUCTILE IRON, SHORT BODY WITH MECHANICAL JOINTS, AND SHALL BE PROVIDED WITH HIGH STRENGTH CORROSION RESISTANT ALLOY, T-HEAD BOLTS, IN CONFORMANCE WITH THE SPECIFICATIONS.
- 9) ALL COLD WATER SERVICE CONNECTIONS SHALL BE POLYETHYLENE (P.E.) TUBING TYPE III, GRADE 3, CLASS 100. SINGLE SERVICE CONNECTIONS SHALL BE A MINIMUM OF ONE INCH (1") P.E. AND DOUBLE SERVICE CONNECTIONS SHALL BE ONE AND ONE-HALF INCH (1-1/2") P.E. AND SHALL BE INSTALLED IN CONFORMANCE WITH THE "WATER STANDARDS" DRAWINGS AND THE REQUIREMENTS OF HARDEE COUNTY.
- 10) A MINIMUM OF 18 INCHES VERTICAL CLEARANCE AND TEN FEET (10') HORIZONTAL CLEARANCE SHALL BE MAINTAINED BETWEEN ALL WATER AND SEWER LINES. WHEN THIS IS NOT POSSIBLE OR FEASIBLE, THE SANITARY LINE SHALL BE ENCASED IN SIX INCHES (6") OF CONCRETE FOR A DISTANCE OF TEN FEET - ZERO INCHES (10'-0") ON BOTH SIDES OF THE CONFLICT IN CONFORMANCE WITH THE "WATER STANDARDS" DRAWINGS.

DESIGNED	D. D.	DATE	10/82
DRAWN	C. S. L.	NO.	
CHECKED	D. D.	REVISION	
APPROVED	D. D.	BY	By Chk. Desh
JOB NO.	B1014	DATE	10/82
PROJECT	HARDEE COUNTY, FLORIDA		
	REGIONAL SANITARY LANDFILL		
	GENERAL NOTES & VICINITY MAP		
	Florida Registered Professional Engineer - No. 13097		
	ENVISSORS, Inc.		
	Consulting Civil & Environmental Engineers		
	Economists and Planners		
	WINTER HAVEN, TAMPA, & MARGATE, FLORIDA		

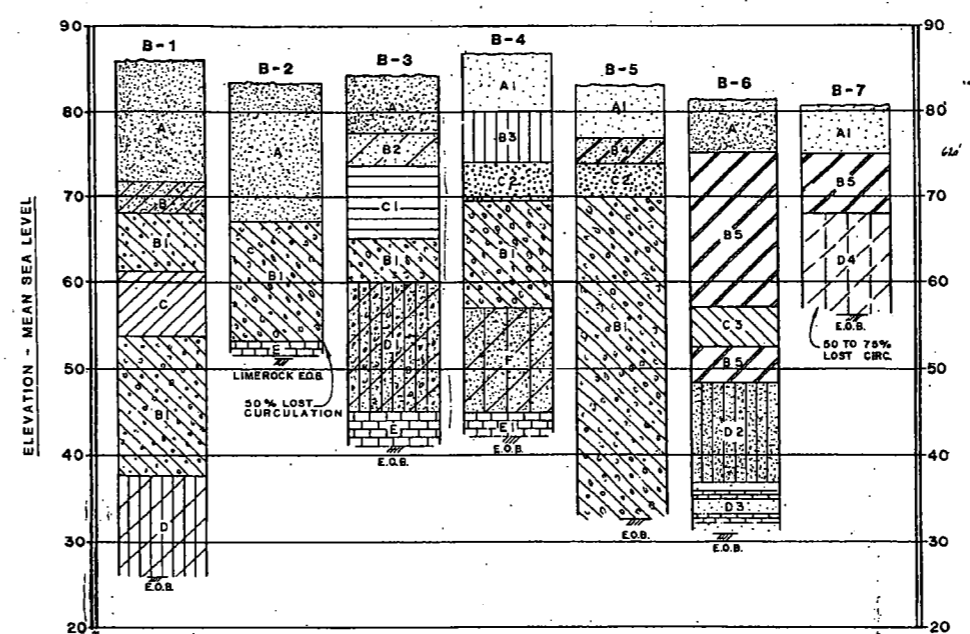
RECORD DRAWING

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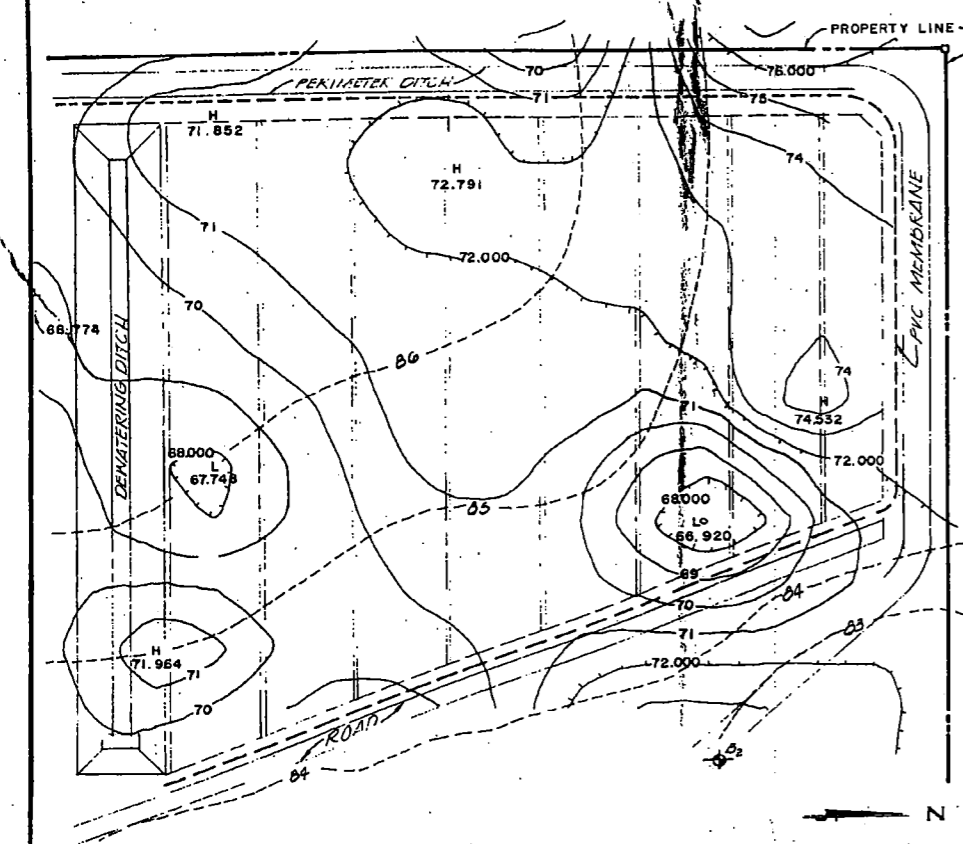


SURFACE SOILS ASSOCIATIONS PLAN



SOIL BORING PROFILES

NOTE: ALL SUBSURFACE SOILS WORK CONDUCTED BY ARMAC ENGINEERING, INC., TAMPA, FLORIDA.

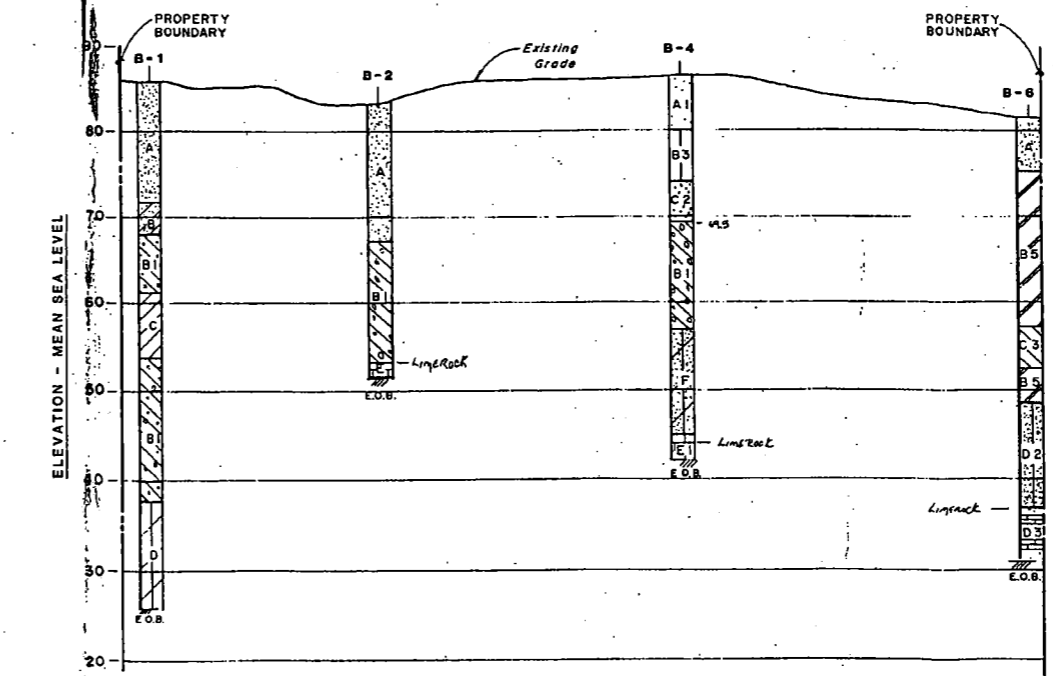


CLAY LAYER ELEVATIONS
 SCALE: 1" = 100'

NOTES
 1) THIS FIGURE REPRESENTS THE RESULTS OF A REFRACTION SEISMIC SURVEY OF THE NORTHWEST CORNER OF THE SITE, PERFORMED BY ARMAC ENGINEERS, INC., 8430 NORTH 40TH STREET, TAMPA, FLORIDA 33604. THIS SURVEY WAS PERFORMED IN ORDER TO ESTABLISH THE EXISTENCE OF AND ESTIMATE THE DEPTH TO THE UNDERLYING CONFINING CLAY LAYER. CORRELATION WITH KNOWN SOIL DEPTH DATA WAS ESTABLISHED BY PERFORMING THE SURVEY IN CLOSE PROXIMITY TO PREVIOUSLY PERFORMED SPT BORINGS B-2 AND B-4. CHARACTERISTIC COMPRESSIVE WAVE VELOCITIES WERE ESTABLISHED FOR BOTH THE UPPER SURFICIAL SOILS AND UNDERLYING CLAY SOILS. THESE AVERAGE COMPRESSIVE WAVE VELOCITIES WERE FOUND TO BE 1362 AND 4824, RESPECTIVELY. THIS HIGH VELOCITY DIFFERENTIAL WAS USED TO IDENTIFY THESE SEPARATE SOIL STRATA.

THE FIGURE SHOWS THE RESULTS OF THIS SEISMOGRAPH INVESTIGATION WHICH INDICATE THAT THE UNDERLYING COHESIVE CLAY LAYER IS ESTIMATED TO LIE AT DEPTHS RANGING FROM ABOUT 8.4 TO 18.0 FEET BELOW GROUND SURFACE (ELEVATION 67.8 TO 77.3 FEET MSL). THE COHESIVE SOIL STRATA WAS FOUND TO BE CONTINUOUS IN THE SUBJECT AREA, BUT POSSIBLE HIGH VELOCITY HARDPAN OR SURFICIAL CLAY LAYERS WERE FOUND TO EXIST AT THREE OUT OF 22 SURVEY GRID LOCATIONS. THESE NEAR-SURFACE HIGH VELOCITY SOIL LAYERS PRODUCED ANOMALOUS WAVE REVERSALS PREVENTING DEEPER SOIL ANALYSIS AT THESE LOCATIONS.

2) CLAY CONTOURS AT ONE FOOT (1') INTERVALS.

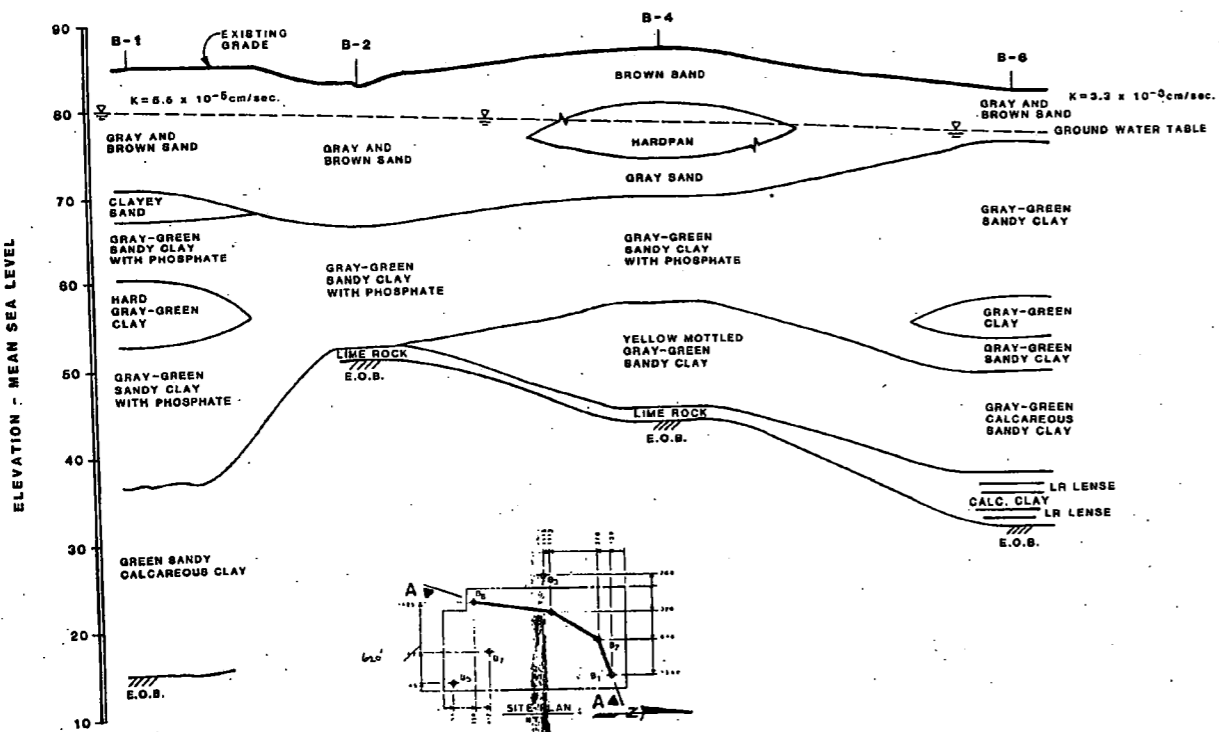


SECTION X-X

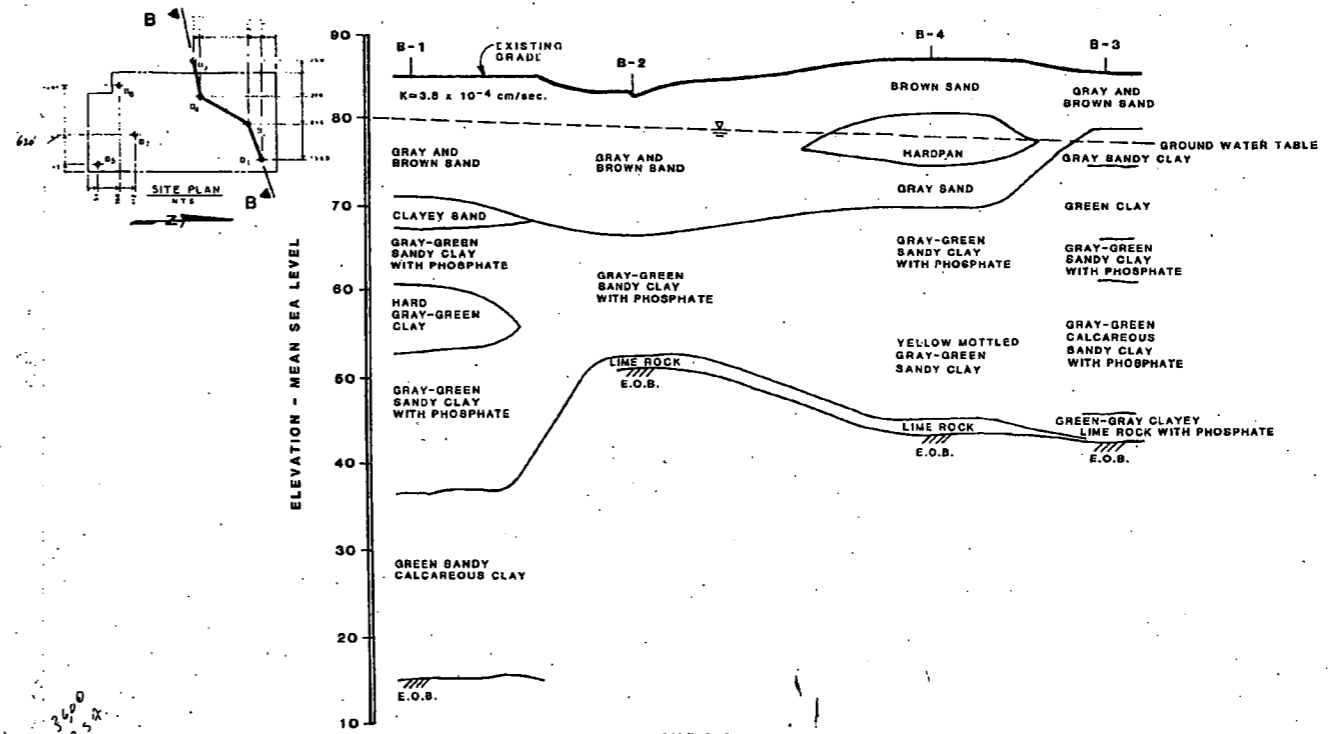
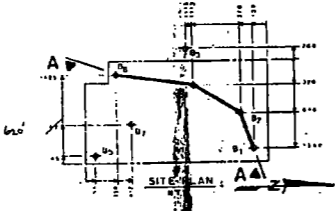
RECORD DRAWING
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 The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

D.E.P.
 JUN - 6 1997
 TAMPA

Designed	C.S.L.	Checked	D.D.	Approved	D.D.	Job No.	B1014	Date	10/82	No.		Revision Description	By	Chk.	Date
HARLEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL												SOILS INFORMATION			
ENVISORS, Inc. Consulting Civil & Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, & HARBOR, FLORIDA												SHEET NUMBER 3 OF 4 SHEETS			

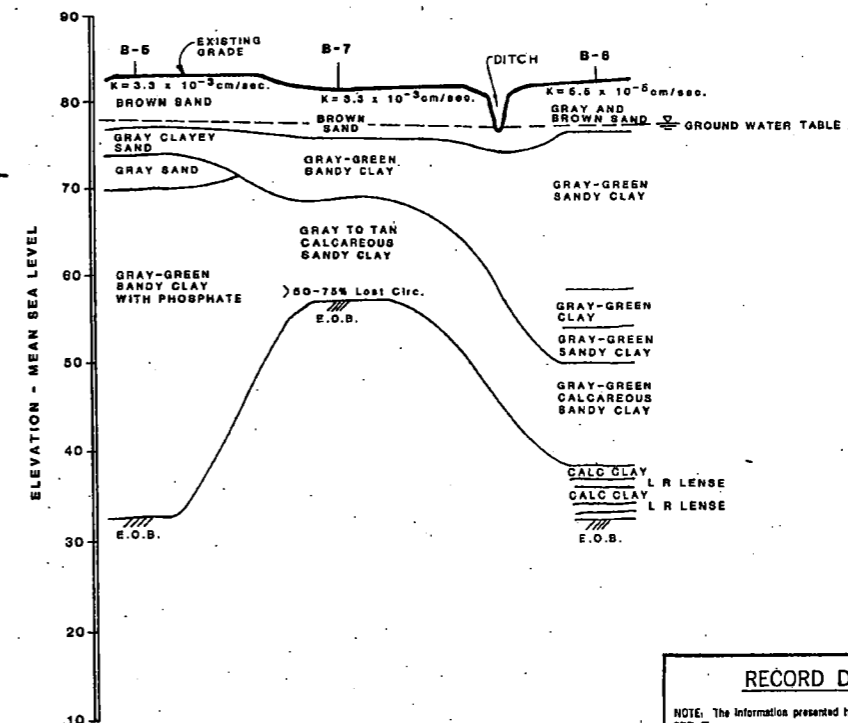
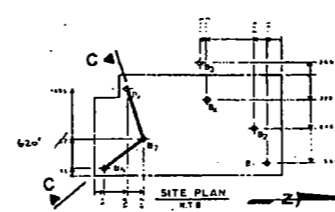


SECTION A-A



SECTION B-B

NOTES: 1.) ALL SUBSURFACE SOILS WORK CONDUCTED BY ARMAC ENGINEERING, INC., TAMPA, FLORIDA
 2.) SUBSURFACE CONDITIONS BETWEEN BORING LOCATIONS ARE INTERPOLATED.



SECTION C-C

RECORD DRAWING

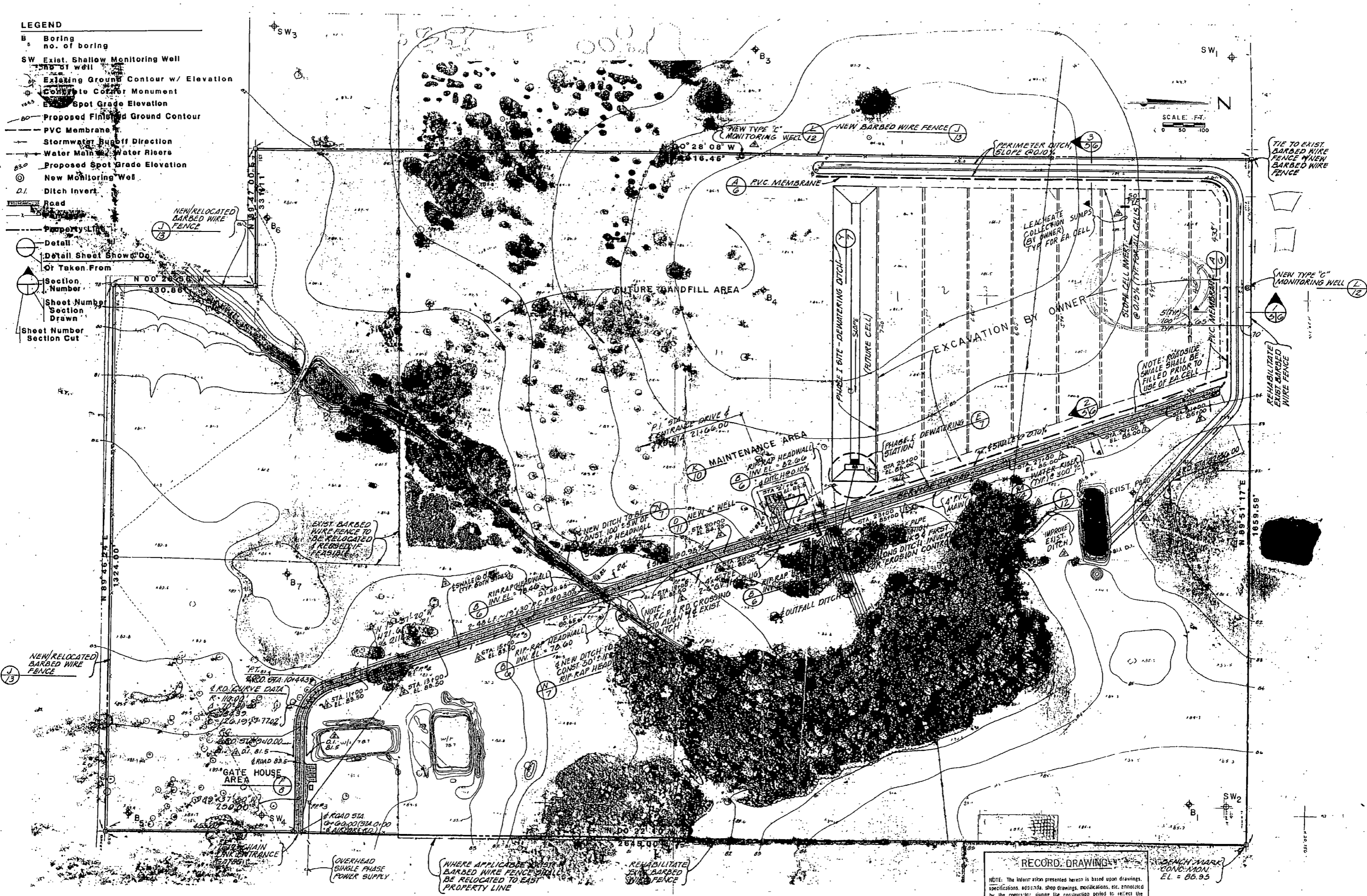
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Designed	C.S.L.	Date	10/82
Drawn	D.D.		
Checked	D.D.		
Approved	D.D.		
Job No.	81014		
Date	10/82		
Revision Description			
		No.	
		By	CHI
		Date	12/2/82

HARDEE COUNTY, FLORIDA.
 REGIONAL SANITARY LANDFILL
SOILS INFORMATION
 Florida Registered Professional Engineer No. 13 087.

LEGEND

- B Boring no. of boring
- SW Exist. Shallow Monitoring Well
- Existing Ground Contour w/ Elevation
- Concrete Corner Monument
- Spot Grade Elevation
- Proposed Finished Ground Contour
- PVC Membrane
- Stormwater Buff off Direction
- Water Main Water Risers
- Proposed Spot Grade Elevation
- New Monitoring Well
- D.I. Ditch Invert
- Road
- Property Line
- Detail
- Detail Sheet Show "Dg"
- Or Taken From
- Section Number
- Sheet Number Section Drawn
- Sheet Number Section Cut



SCALE: FT.
0 50 100

RECORD DRAWING

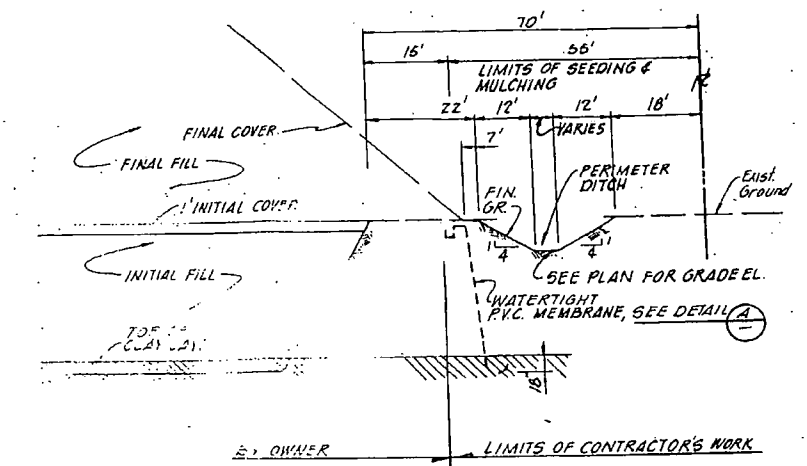
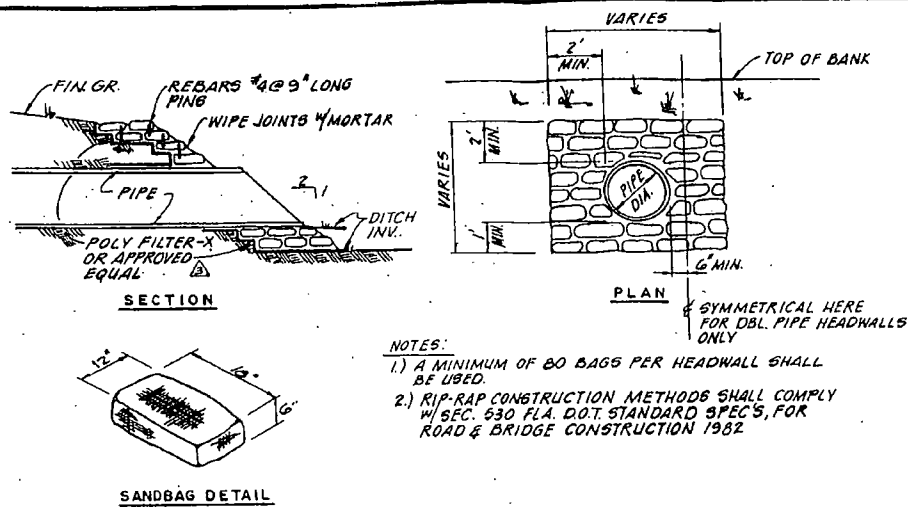
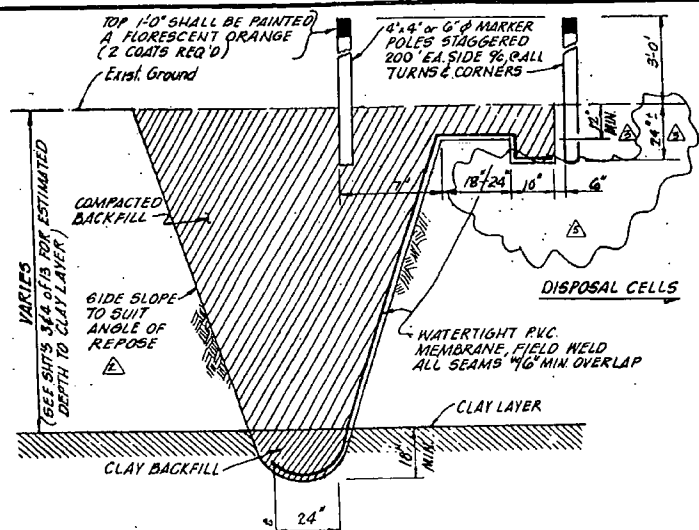
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BENCH MARK CONC. MON. EL. = 86.95

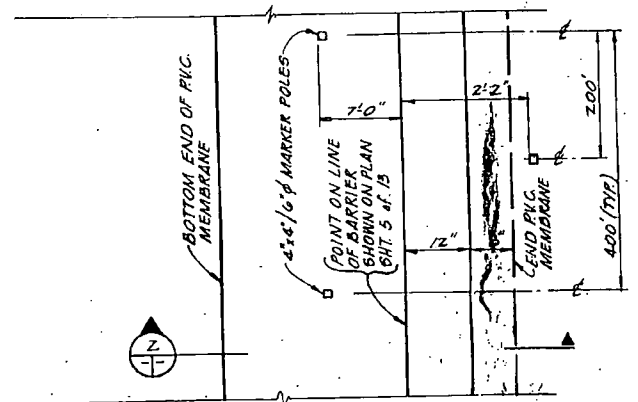
NOTE: BENCH MARK SHOWN IS DERIVED FROM SURVEY OF 9 DECEMBER 1981 PERFORMED BY MARK P. PORTER, P.L.S. OF CHASTAIN-SKILLMAN, INC., LAKELAND, FLORIDA

Designed	N.W.	Drawn	N.W.	Checked	D.D.	Approved	D.D.	Job No.	81014	Comments	Refer to
HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL PHASE I SITE PLAN											
ENVISORS, Inc. Consulting Civil & Environmental Engineers											
SHEET NO. 01											

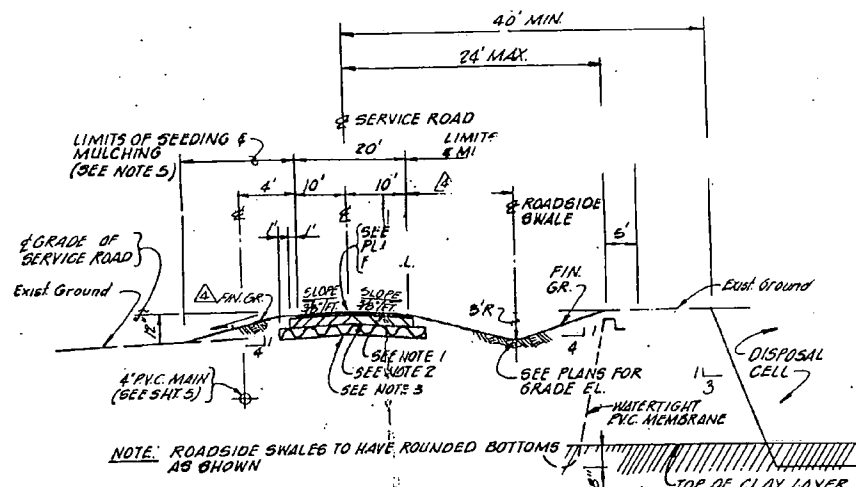


RIP-RAP HEADWALL (B) (5) N.T.S.

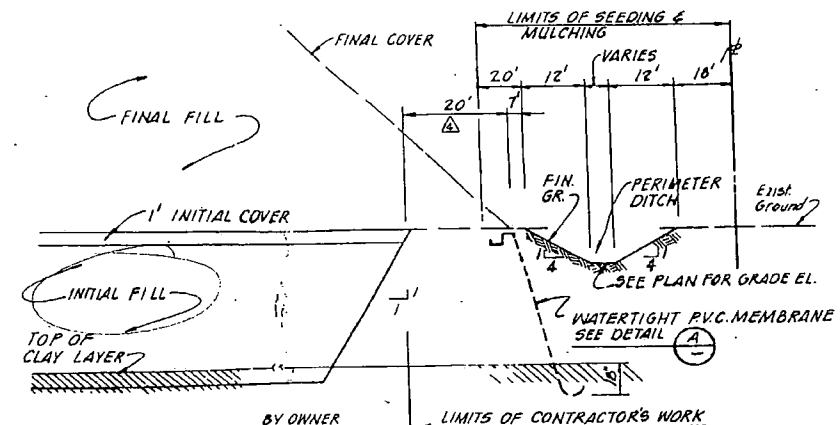
PERIMETER DITCH (1) (5) NORTH PROPERTY LINE N.T.S.



PVC MEMBRANE INSTALLATION (A) (5) N.T.S.

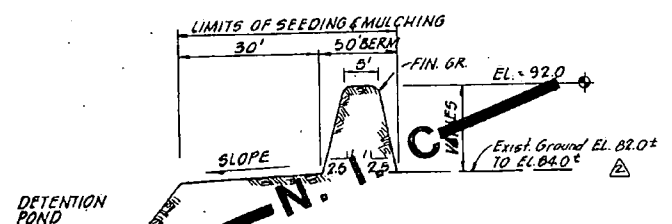


TYPICAL SERVICE ROAD (2) (5) (5) N.T.S.

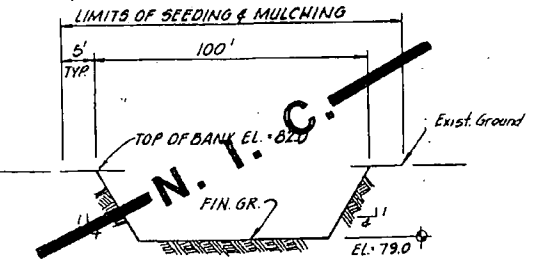


PERIMETER DITCH (3) (5) WEST PROPERTY LINE N.T.S.

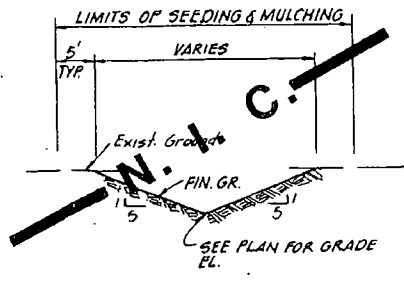
- NOTES:
- 1) DEDUCTIBLE ALT. #2;
 - 2) 1 1/2" TYPE II ASPHALT SURFACE.
 - 3) 8" SHELL ROCK OR LIME ROCK BASE (F.B.V. 100)
 - 4) 4" STABILIZED SUB-BASE (95% AASHTO T-100)
 - 5) 1/2" F.B.V. 60.
 - 6) ROADSIDE SWALES SHALL BE PROVIDED WHERE SHOWN ON OVERALL SITE PLAN.
 - 7) SLOPE @ 2:1 FROM ROAD TO EXIST. GROUND; TYP. WHERE NO ROADSIDE SWALES ARE SHOWN.
 - 8) CONTRACTOR SHALL PROVIDE 1'-0" MIN. COVER WHERE WATER MAIN & DRAINAGE PIPE CROSSING OCCUR AT MAINTENANCE BLDG. (MIN. W.M. DEPTH SHALL BE 3'-0")



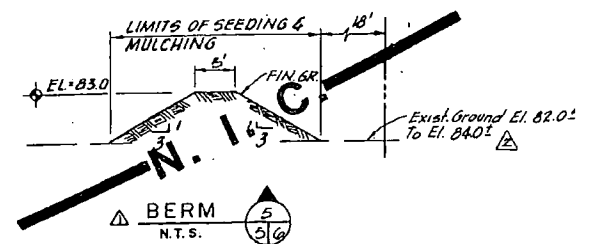
NOTE: PART OF DEDUCTIBLE ALTERNATE NO. 3



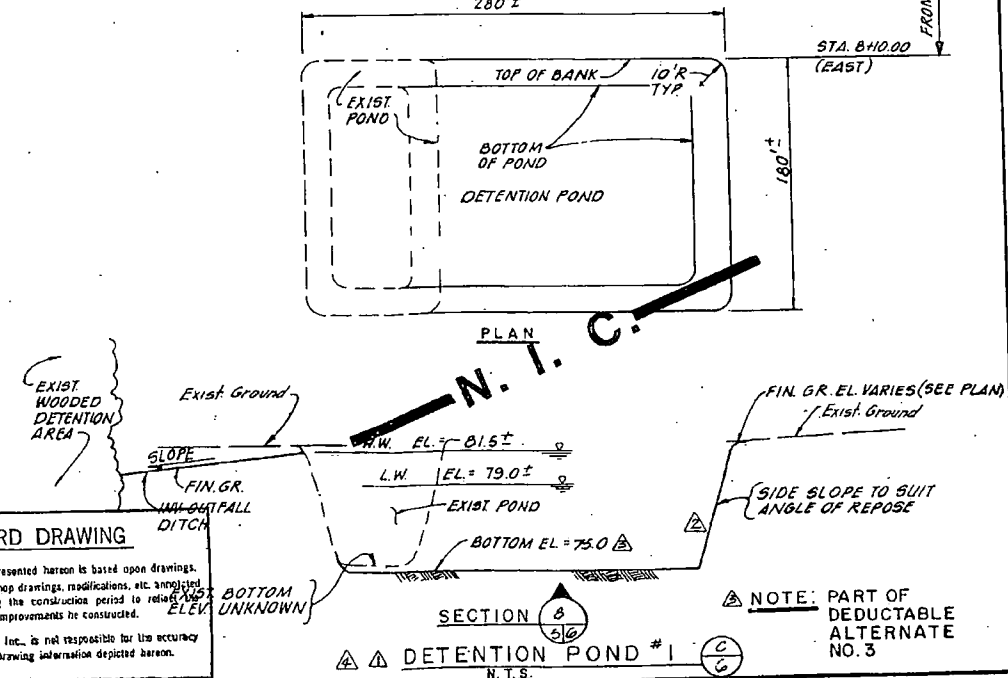
NOTE: PART OF DEDUCTIBLE ALTERNATE NO. 1



NOTE: PART OF DEDUCTIBLE ALTERNATE NO. 1



NOTE: PART OF DEDUCTIBLE ALTERNATE NO. 3



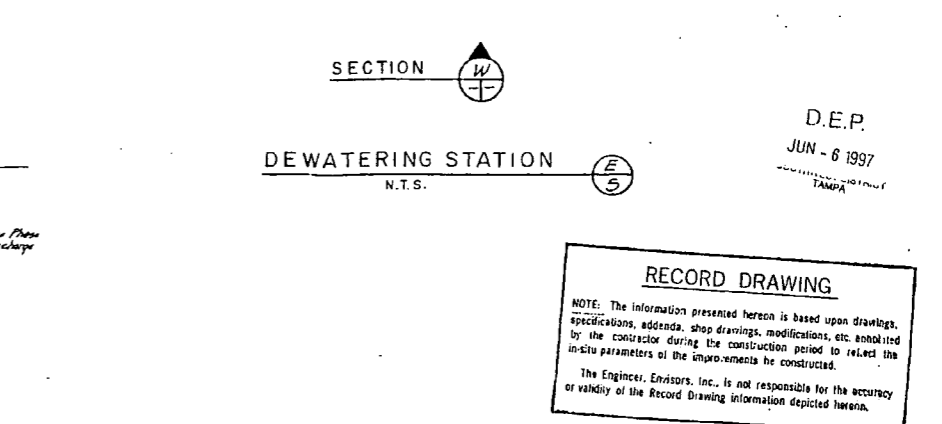
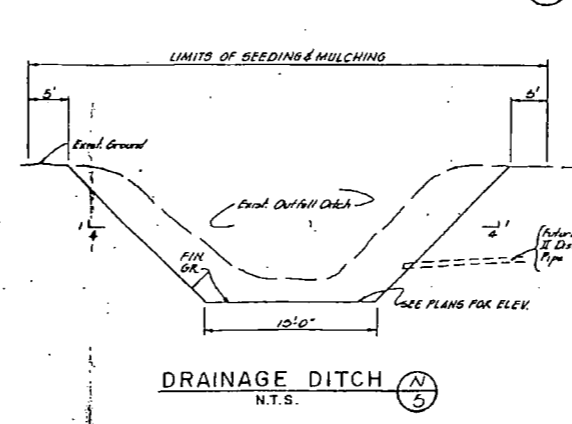
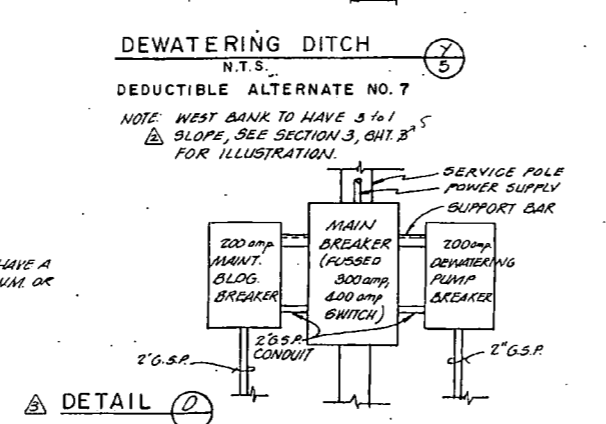
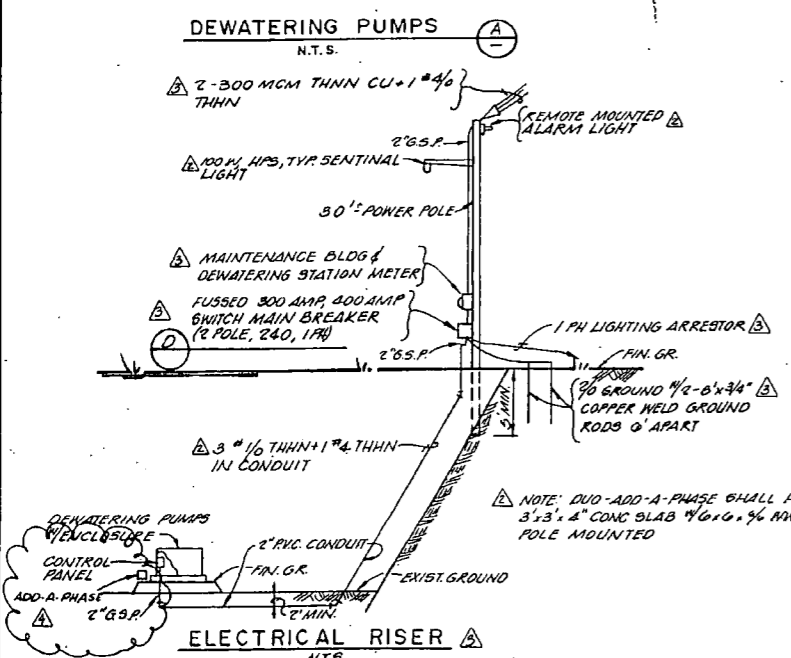
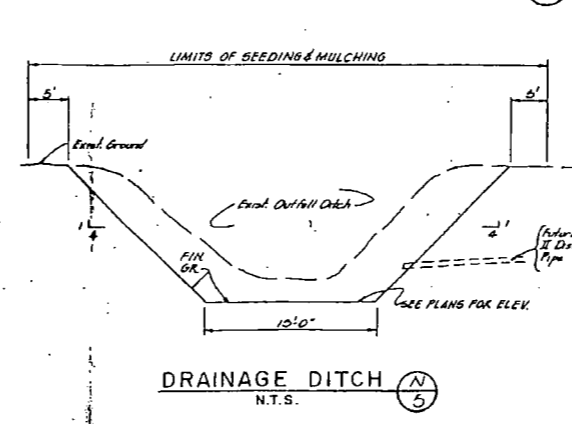
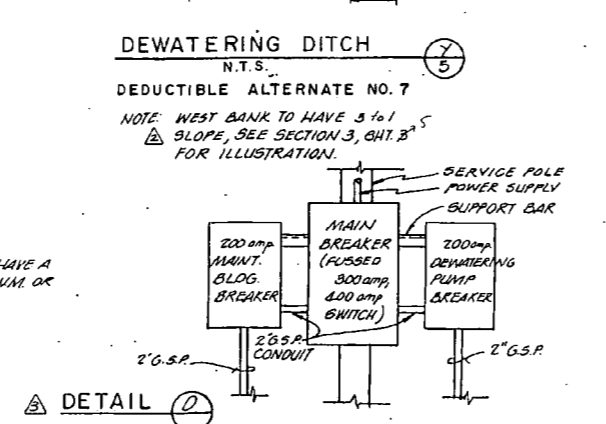
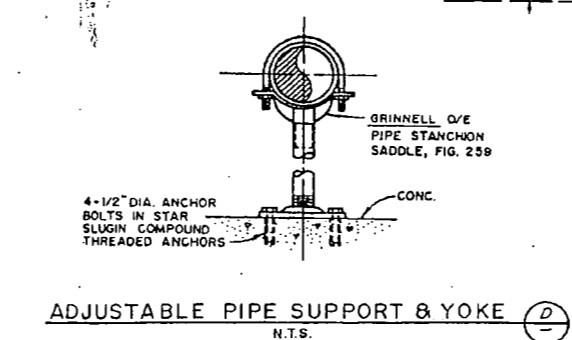
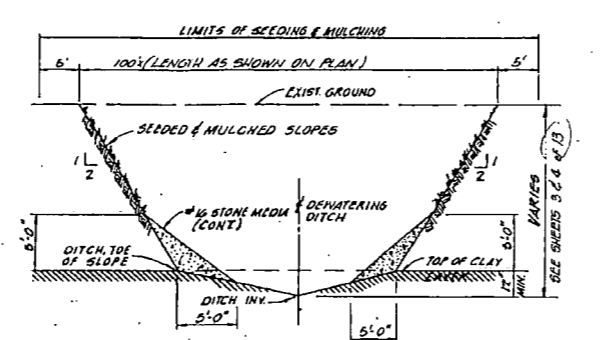
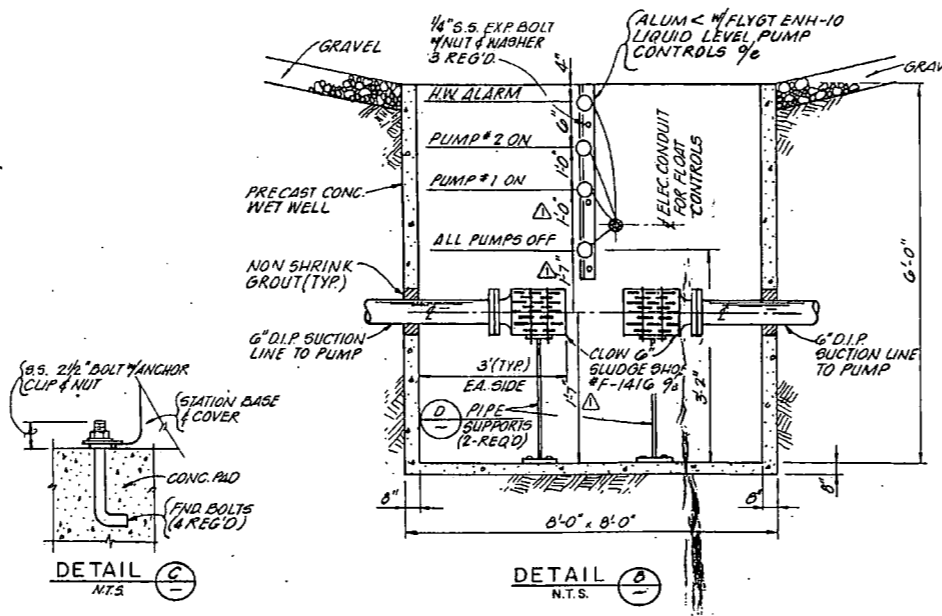
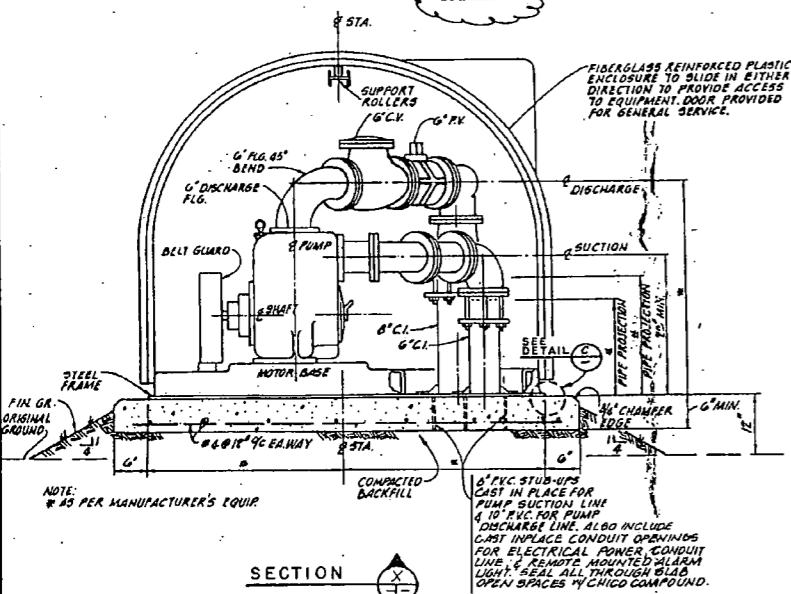
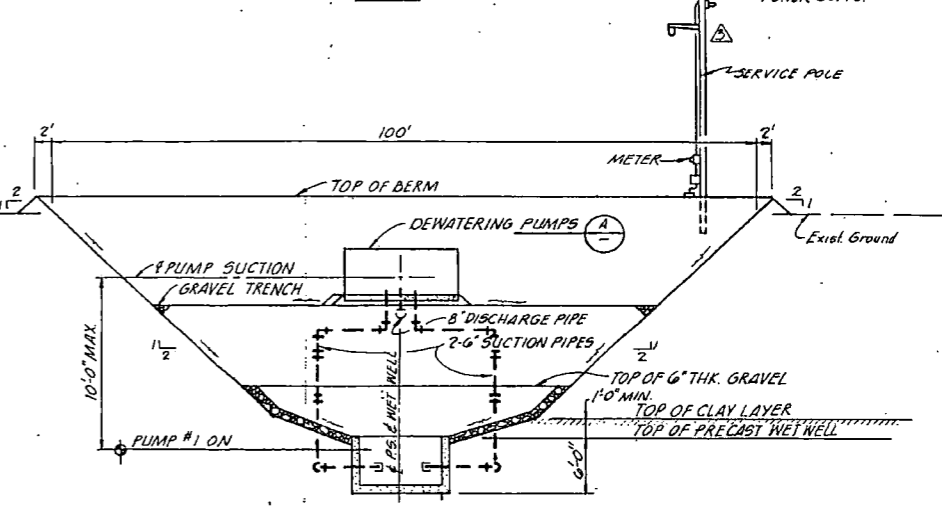
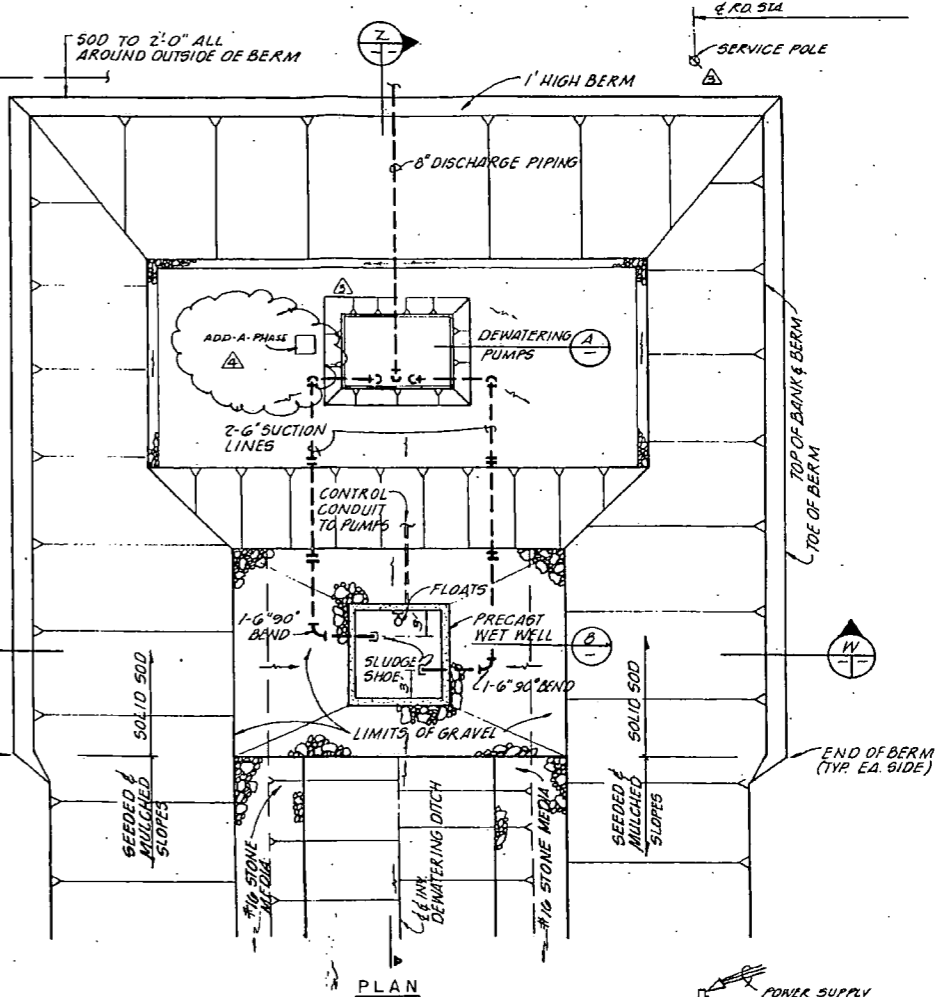
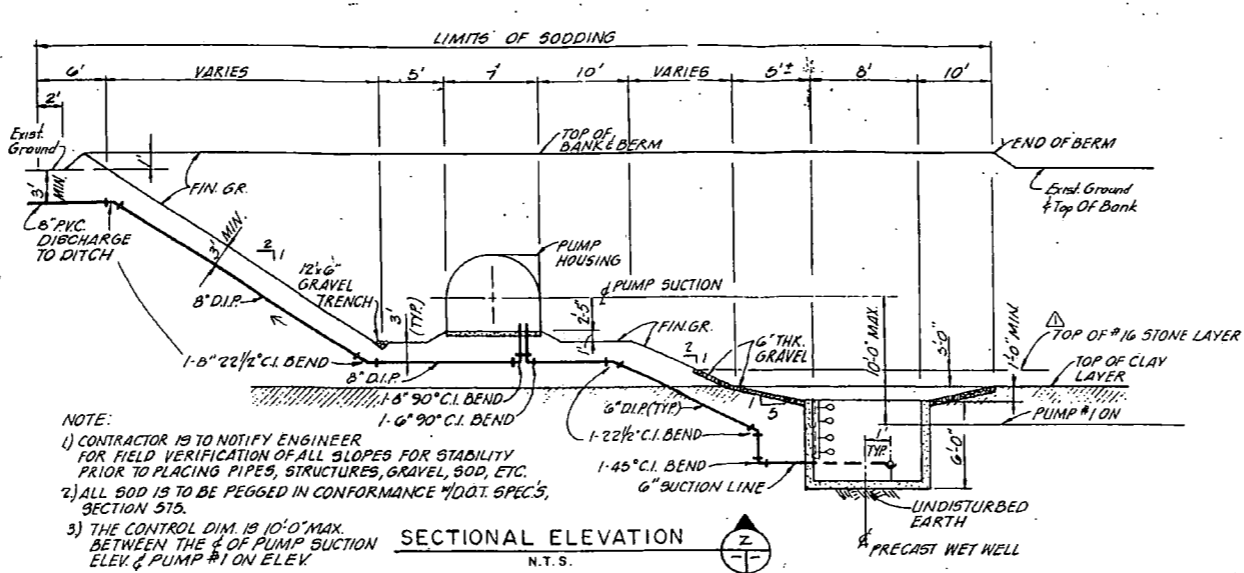
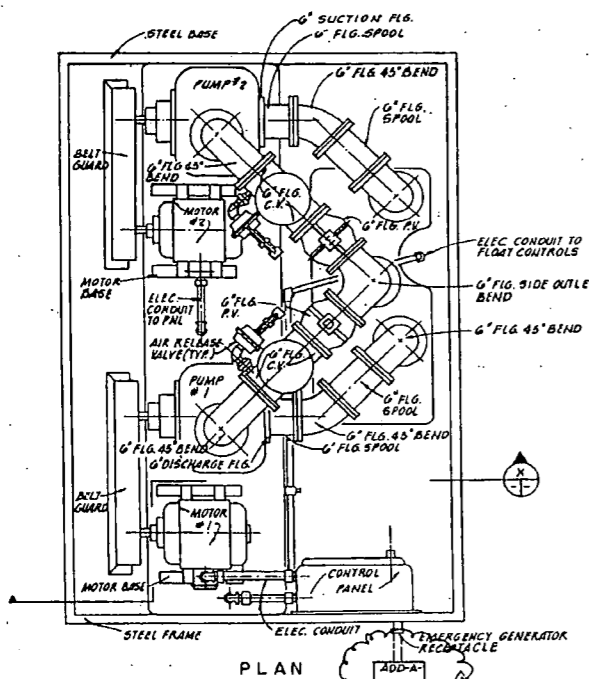
NOTE: PART OF DEDUCTIBLE ALTERNATE NO. 3

RECORD DRAWING

NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. accepted by the contractor during the construction period to release the in-situ parameters of the improvements to be constructed.

The Engineer, Envisors, Inc., is not responsible for the accuracy or reliability of the Record Drawing information depicted hereon.

Checked	C.S.L.	Drawn	C.S.L.	Approved	D.D.	Job No.	B1014	Date	10/82
Checked	D.D.	Approved	D.D.	Job No.	B1014	Date	10/82	N.S.	
HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL CONSTRUCTION DETAILS Envisors, Inc. Consulting Civil & Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, & MIAMI, FLORIDA SHEET NUMBER 6 OF 14 SHEETS									



NOTE:
 1) CONTRACTOR IS TO NOTIFY ENGINEER FOR FIELD VERIFICATION OF ALL SLOPES FOR STABILITY PRIOR TO PLACING PIPES, STRUCTURES, GRAVEL, SOD, ETC.
 2) ALL SOD IS TO BE PEGGED IN CONFORMANCE WITH DOT SPEC'S, SECTION 515.
 3) THE CONTROL DIM. IS 10'-0" MAX. BETWEEN THE 2 OF PUMP SUCTION ELEV. & PUMP #1 ON ELEV.

NOTE:
 # AS PER MANUFACTURER'S EQUIP.
 6" PVC STUB-UPS CAST IN PLACE FOR PUMP SUCTION LINE & 10" PVC FOR PUMP DISCHARGE LINE. ALSO INCLUDE CAST IN PLACE CONDUIT OPENINGS FOR ELECTRICAL POWER CONDUIT LINE & REMOTE MOUNTED SLASH LIGHT. SEAL ALL THROUGH BLAD. OPEN SPACES WITH GICOMPOUND.

NOTE: WEST BANK TO HAVE 3:1 SLOPE, SEE SECTION 3, CHIT. B FOR ILLUSTRATION.

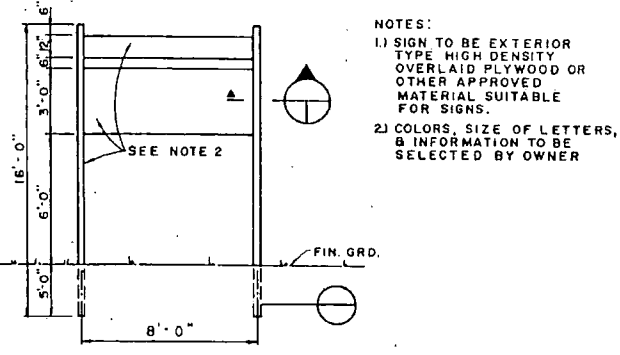
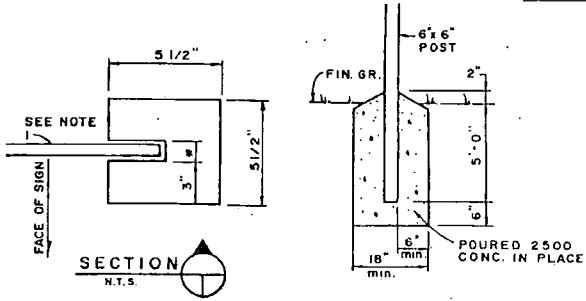
RECORD DRAWING
 NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. authorized by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.
 The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

DESIGNED	D.D.	10/7/82	NO.	10/7/82
DRAWN	C.S.L.			
CHECKED	D.D.			
APPROVED	D.D.			
JOB NO.	81014			
DATE	10/7/82			
BY	CHK. DATE			
REVISION	DESCRIPTION			
1	CONSTRUCTION CHANGE			
2	ELECTRICAL RISER, ADD-A-PHASE RELAYED.			
3	ELECTRICAL RISER, ADD-A-PHASE CONVERTER, ETC.			
4	Detail B Elev. Dec 3, Above L. L. Add. Remarks. Alter.			

HARDEE COUNTY, FLORIDA
 REGIONAL SANITARY LANDFILL
 DEWATERING STATION
 & DETAILS

ENVISORS, Inc.
 Consulting Civil & Environmental Engineers
 Economists, and Planners
 WINTER HAVEN, TAMPA, & MARGATE, FLORIDA

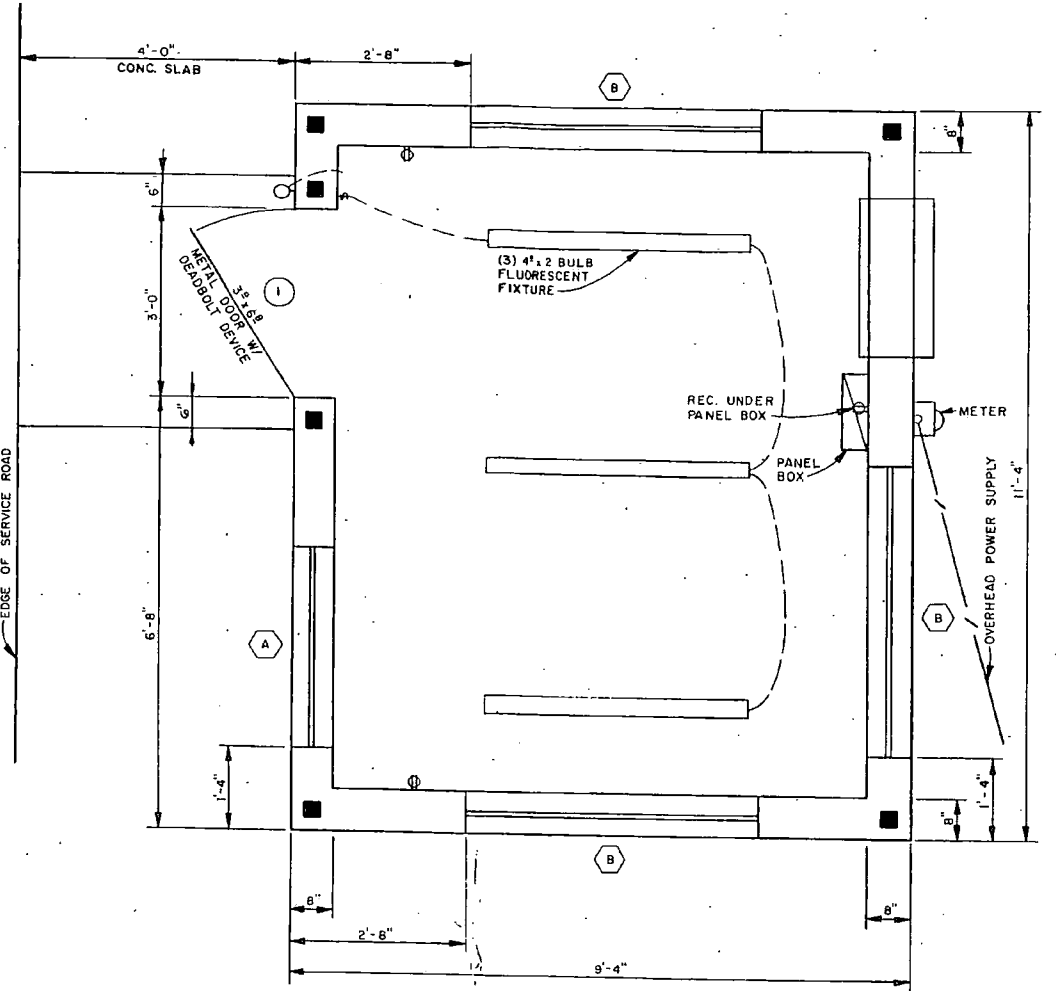
SHEET NUMBER
7
 OF 14 SHEETS



NOTES:
 1) SIGN TO BE EXTERIOR TYPE HIGH DENSITY OVERLAIN PLYWOOD OR OTHER APPROVED MATERIAL SUITABLE FOR SIGNS.
 2) COLORS, SIZE OF LETTERS, & INFORMATION TO BE SELECTED BY OWNER

NOTES:
 DOOR: U.S. METALS SERIES 1-42 O/E ALL ALUMINUM WITH FACTORY FINISH. DOOR SHALL BE COMPLETELY FLUSH IN DESIGN CONSTRUCTED OF EXTRUDED RAILS AND OSU #10 PATTERN ALUMINUM FACE SHEETS. EDGES SHALL NOT BE "COPPED" WITH CHANNEL HOLDINGS.
 FINISH: CLEAR ANODIZED (0.4 mil min).
 HARDWARE: DOOR AND FRAME AT ALL HINGES AND LOCKS SHALL BE REINFORCED AS PER MANUFACTURER'S EQUIPMENT HAVING A MINIMUM THICKNESS OF .250".
 LACKING HARDWARE: U.S. METALS, 160 SERIES O/E CYLINDRICAL LOCKS; AND U.S. METALS H.S. 1850 O/E DEAD BOLT LOCK.

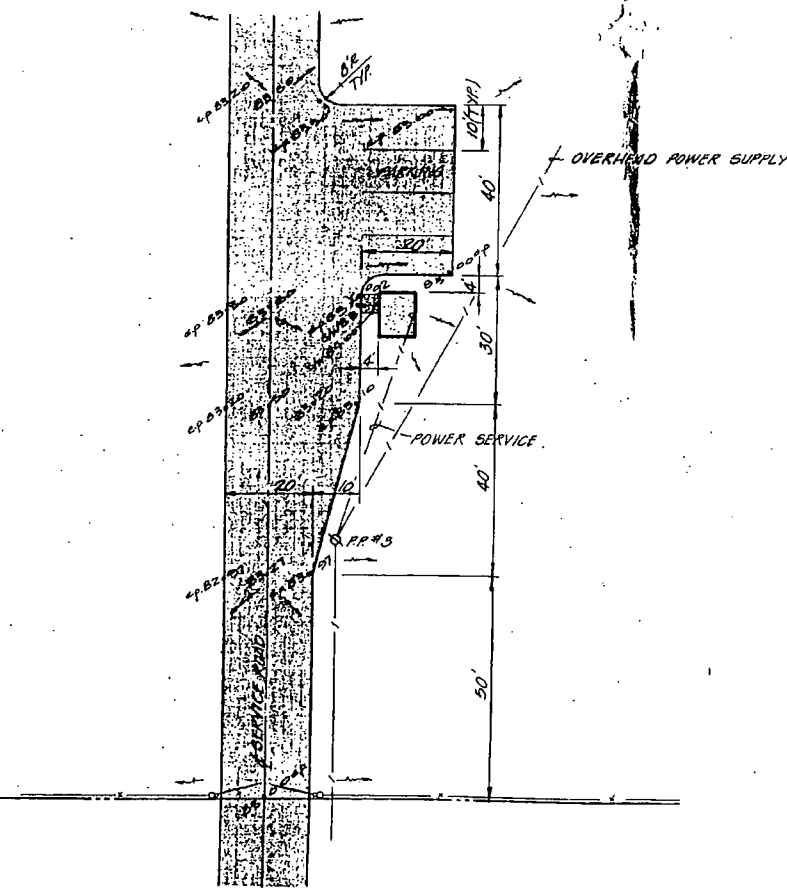
- GENERAL NOTES**
- 1) **CONSTRUCTION:** ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MINIMUM STANDARDS OF "THE SOUTHERN FLORIDA BUILDING CODE", 1982 EDITION.
 - 2) **EXAMINATION OF SITE:** CONTRACTOR IS REQUESTED TO VISIT THE SITE, COMPARE THE DRAWINGS WITH ANY WORK IN PLACE, AND INFORM HIMSELF AS TO ALL CONDITIONS, WITHOUT ADDITIONAL COST TO THE OWNER.
 - 3) **CLEANING:** THE CONTRACTOR SHALL KEEP PREMISES FREE FROM ACCUMULATION OF WASTE AND RUBBISH CAUSED BY OPERATIONS. AT COMPLETION OF WORK, REMOVE WASTE MATERIALS, RUBBISH, TOOLS, EQUIPMENT, MACHINERY, AND SURPLUS MATERIAL AND CLEAN ALL EXPOSED SURFACES LEAVING PROJECT CLEAN.
 - 4) **BUILDING ACCESSORIES:** INCLUDE ALL SPACERS, CHAIRS, TIES, AND OTHER DEVICES NECESSARY FOR PROPERLY PLACING, SPACING, SUPPORTING, AND FASTENING REINFORCING IN PLACE.
 - 5) **FLUORESCENT LIGHTING FIXTURES:** FLUORESCENT LIGHTING FIXTURES SHALL BE TWO (2) BULB 4'-0" STANDARD LENGTHS. FIXTURES SHALL INCLUDE A METAL REFLECTOR PLATE COVERING BOTH SIDES AND TOP.
 - 6) **EXTERIOR ENTRANCE LIGHT:** ENTRANCE LIGHT SHALL BE SET AND ACTIVATED BY TIMER.
 - 7) **ALL EXPOSED CONCRETE:** ALL EXPOSED CONCRETE SHALL RECEIVE TWO (2) COATS OF SEALER AND ONE (1) FINISH COAT OF APPROVED PAINT, COLOR SELECTED BY OWNER.
 - 8) **ALUMINUM TRIM:** MATERIAL AS SPECIFIED ON DRAWINGS; COLOR SHALL BE BROWN UNLESS OTHERWISE DIRECTED BY OWNER.
 - 9) **CONCRETE FLOOR AND PORCH SLABS:** SHALL HAVE A SKID-RESISTANCY FACTOR AND A 0.5 COEFFICIENT OF FRICTION FACTOR, GENERALLY A "BROOM FINISH" IS ACCEPTABLE.



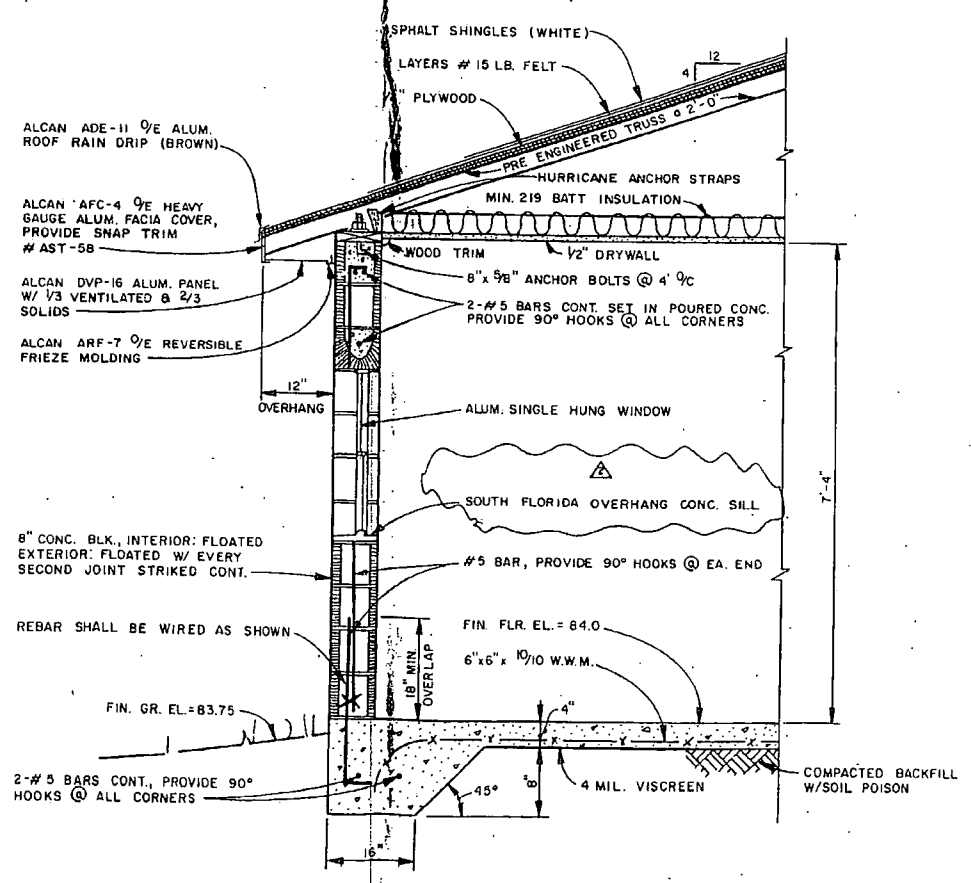
FLOOR PLAN
 SCALE: 3/4" = 1'-0"

DOOR SCHEDULE				
MARK	SIZE	TYPE	MT'L	REMARKS
①	3' x 6' 0"	L.H.	ALUM.	MATCHING ALUM. FRAME WITH ANCHOR SUPPORTS

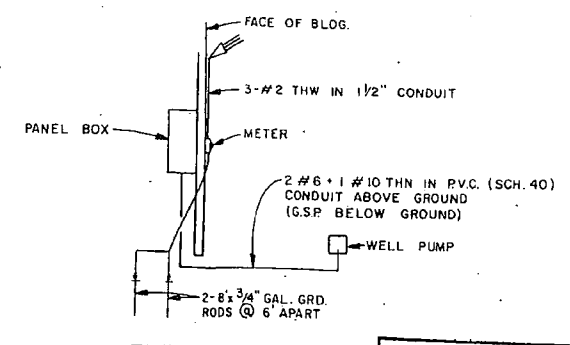
WINDOW SCHEDULE				
MARK	SIZE	TYPE	MT'L	REMARKS
(A)	57" x 58 1/2"	SINGLE HUNG	ALUM.	
(B)	53 1/2" x 38 1/2"	"	"	



GATE HOUSE AREA
 SCALE: 1" = 20'



TYP. CROSS SECTION
 SCALE: 3/4" = 1'-0"



ELECTRICAL RISER
 N.T.S.

RECORD DRAWING

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The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted herein.

HARDEE COUNTY, FLORIDA
 REGIONAL SANITARY LANDFILL
SITE PLAN & DETAILS

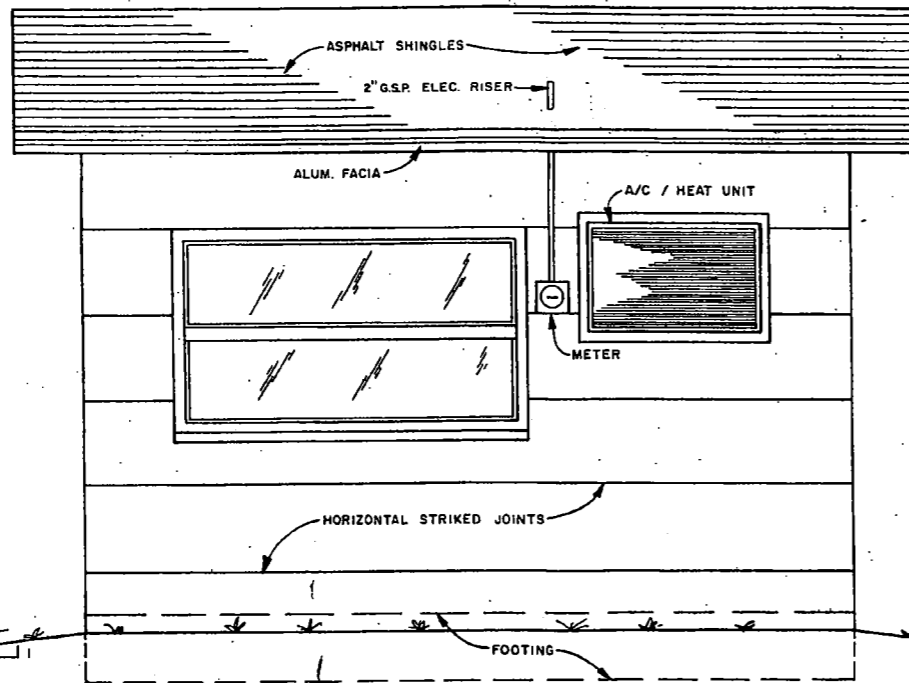
ENVISORS, Inc.
 Consulting Civil & Environmental Engineers
 Economists and Planners
 WINTER HAVEN, TAMPA, & MARGATE, FLORIDA

Designed	C.S.L.	Checked	D.D.	Approved	D.D.	Job No.	8104	Date	10/82	No.	
Drawn											

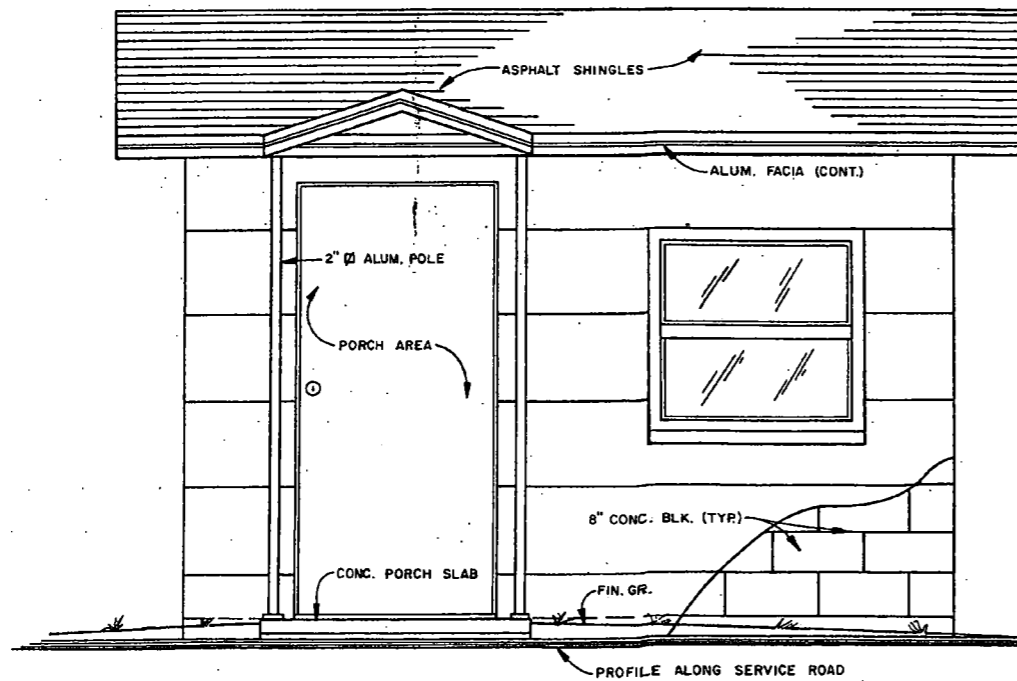
Revised Description: No. 10/82

By: [Signature] Date: [Signature]

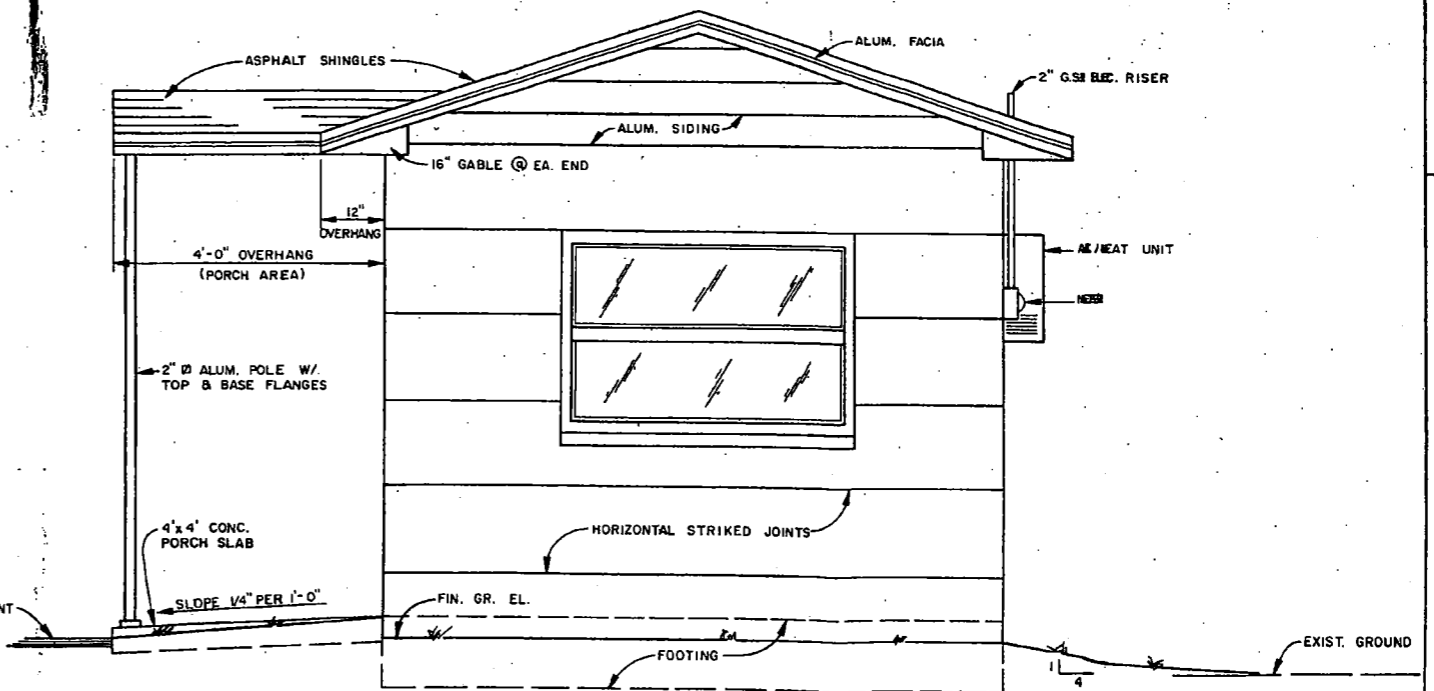
SHEET NUMBER: 8 OF 14 SHEETS



NORTH ELEVATION
SCALE: 3/4" = 1'-0"



SOUTH ELEVATION
SCALE: 3/4" = 1'-0"



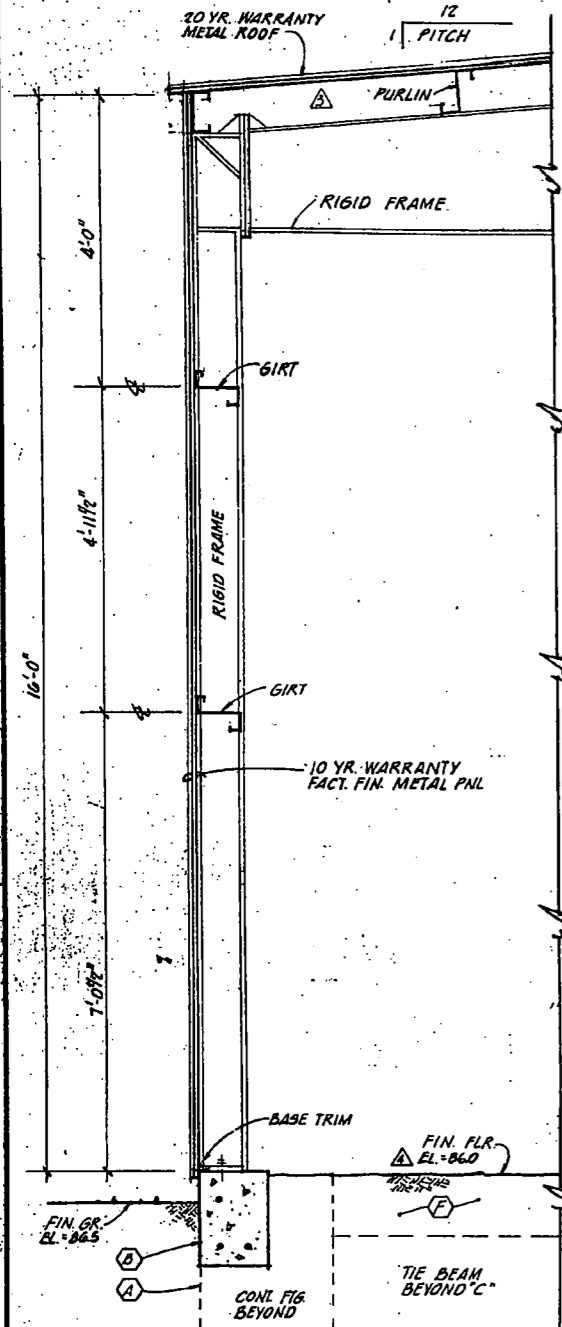
EAST ELEVATION
SCALE: 3/4" = 1'-0"

RECORD DRAWING

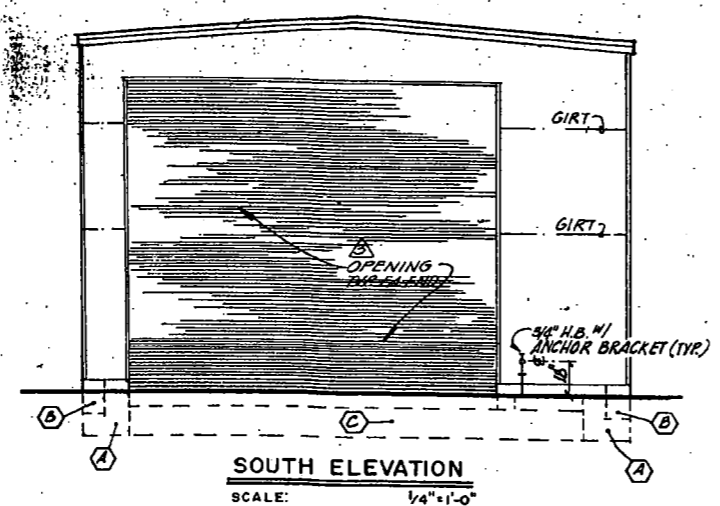
The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. annotated and approved by the contractor during the construction period to reflect the actual construction of the improvements he constructed.

Envisors, Inc. is not responsible for the accuracy of the Record Drawing information depicted hereon.

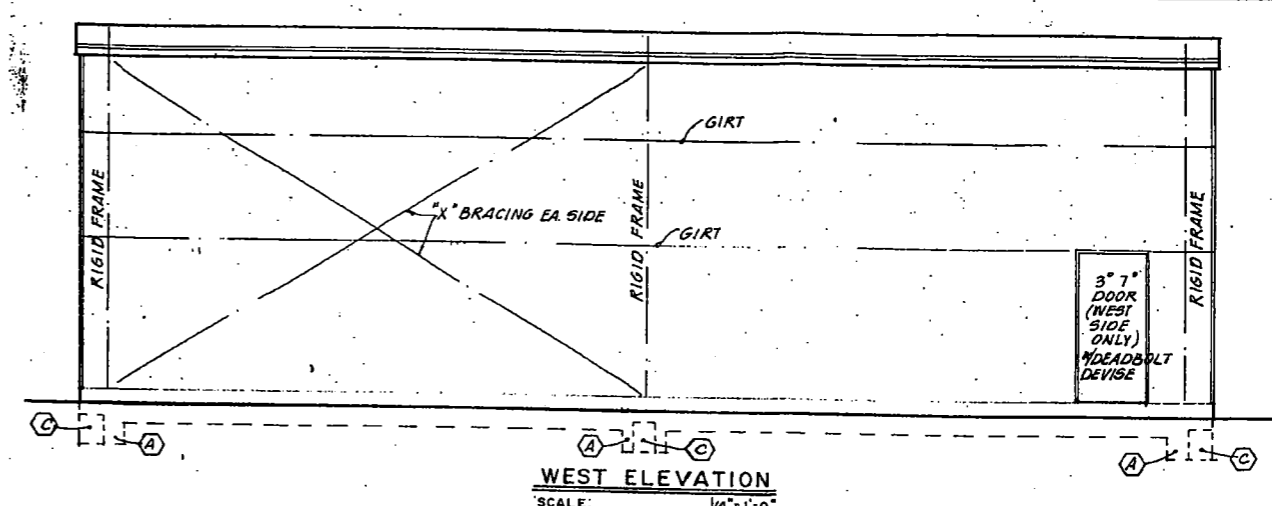
DESIGNED		C.S.L.	
DRAWN		K.C.S.	
CHECKED		D.A.	
APPROVED		D.D.	
JOB NO.	81041	DATE	10/82
NO.	1	REVISION DESCRIPTION	Alum Siding
HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL			
GATE HOUSE EXTERIOR ELEVATIONS			
ENVISORS, Inc. Consulting, Civil & Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, & MARGATE, FLORIDA			
FLORIDA REGISTERED PROFESSIONAL ENGINEER NO. 13097			
SHEET NUMBER		0	
OF 14 SHEETS			



TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"

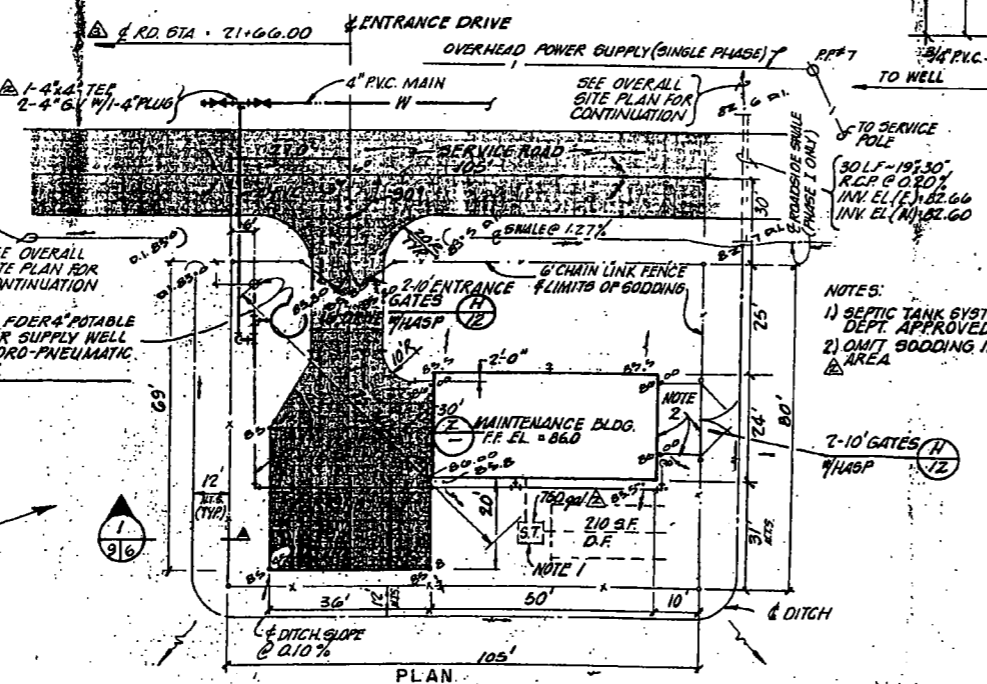


SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

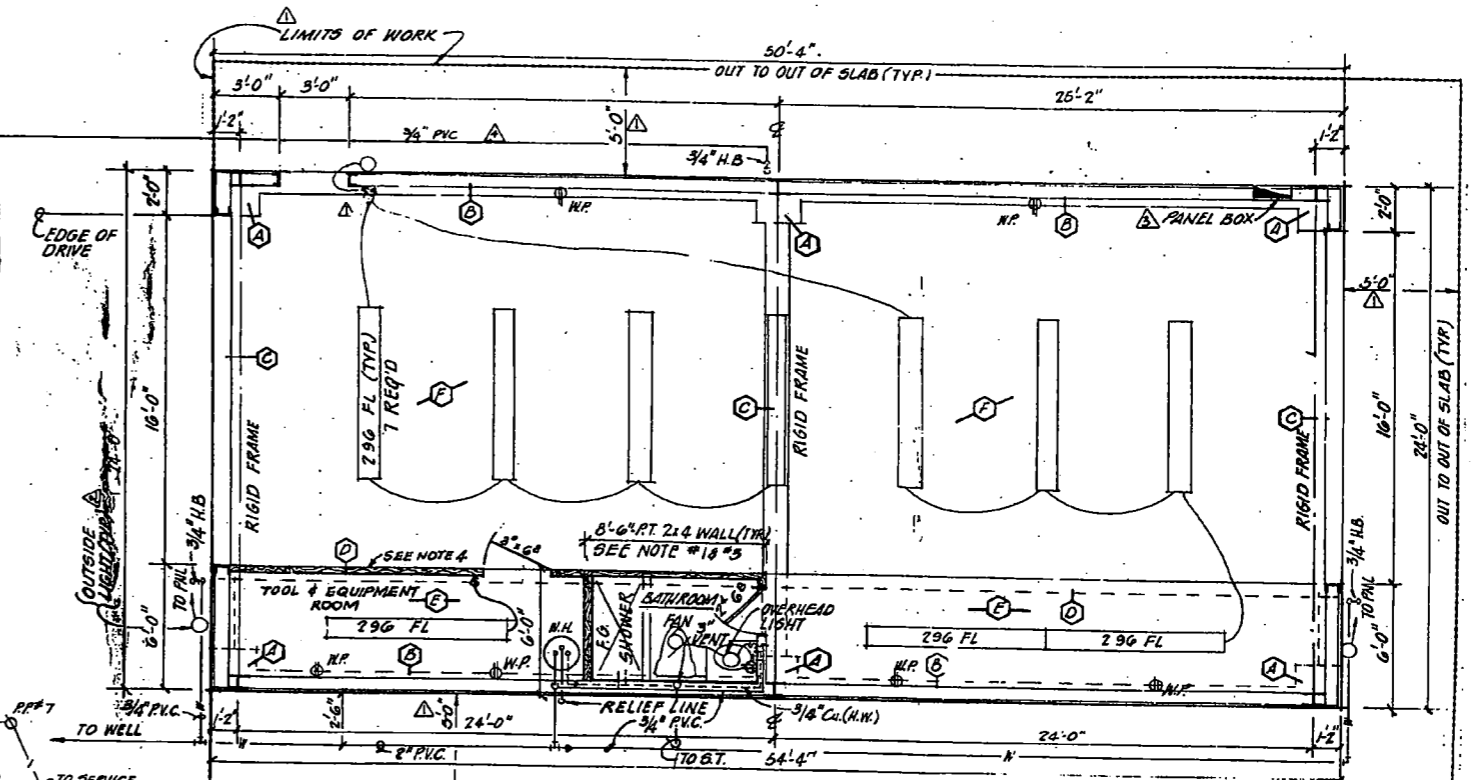


WEST ELEVATION
SCALE: 1/4" = 1'-0"

- FOOTING SCHEDULE**
- ① 2'-0" x 2'-0" x 2'-0" #4 @ 6" OC EA. WAY
 - ② 1'-0" x 1'-0" x 2'-0" CONT #3 - #5 (@ TOP OF FTG. "A")
 - ③ 1'-0" x 1'-0" x 2'-0" #3 - #5 (@ BOTTOM OF FTG. "A")
 - ④ 8" x 12" BELL FTG. #1 #5
 - ⑤ 4" REINP. CONC. SLAB (3000 P.S.I. CONC.) #4 @ 6" TO 10" MIN. ON 6" MILL VISQUEEN
 - ⑥ LIMEROCK/SHELL BASE 8" MIN. THICKNESS, COMPACTED TO F.B.V. 40
- NOTE:**
A, C TO BE TIED TOGETHER #5 REBAR @ 30" DIA, PROVIDE 90° HOOKS



MAINTENANCE AREA
SCALE: 1" = 20'

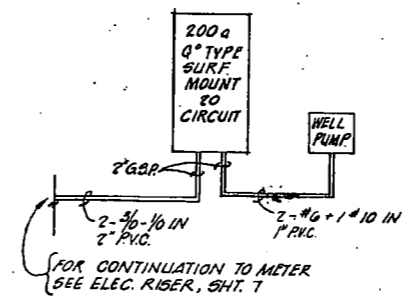


FOUNDATION & FLOOR PLAN
SCALE: 1/4" = 1'-0"

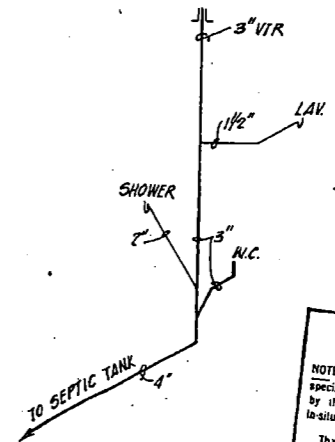
- NOTE:**
- 1) 2 x 4 @ 16" OC #1/2" DRYWALL INSIDE & 3/8" EXTERIOR SIDING OUTSIDE, HAVING A CEILING HEIGHT OF 8'-0"
 - 2) OUTSIDE LIGHTS: KEEN (2-150W PAR 38) CAT # 2-G100 B, LOCATE AS SHOWN.
 - 3) PREPARE DRYWALL & COAT INSIDE WITH WATER PROOF COVERING (MAARLITE OR APPROVED EQUAL).

MAINTENANCE BUILDING
DEDUCTIBLE ALTERNATE NO. 4
MAINTENANCE BUILDING FLOOR PLAN IS SHOWN MIRROR IMAGE FROM TRUE ORIENTATION
REFER TO SHEET 5 SITE PLAN.

- NOTES:**
- 1) SEPTIC TANK SYSTEM TO BE HEALTH DEPT. APPROVED
 - 2) OMIT SODDING IN THIS AREA



ELEC. RISER
N.T.S.



PLUMBING RISER
N.T.S.

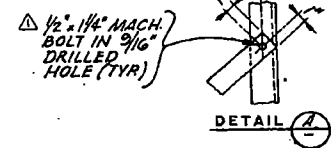
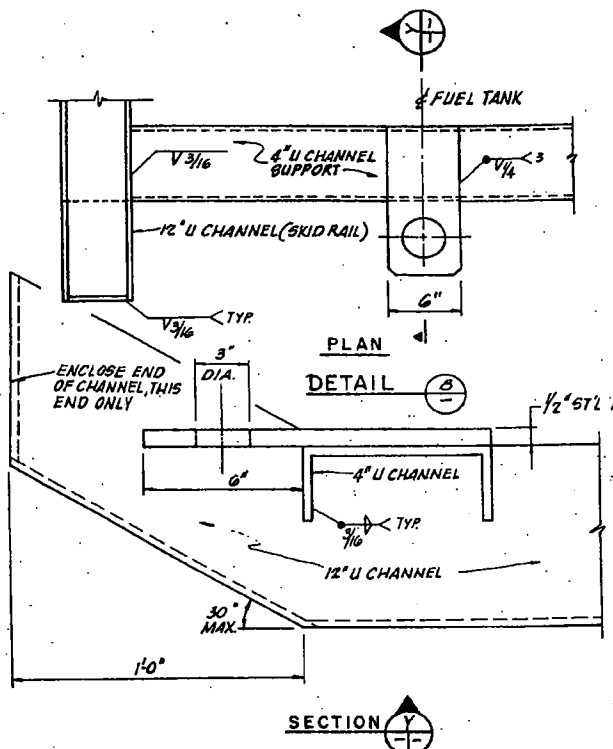
RECORD DRAWING
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ENVISORS, Inc.
Consulting Civil & Environmental Engineers
Economists and Planners
WINTER HAVEN, TAMPA, & MADISON, FLORIDA

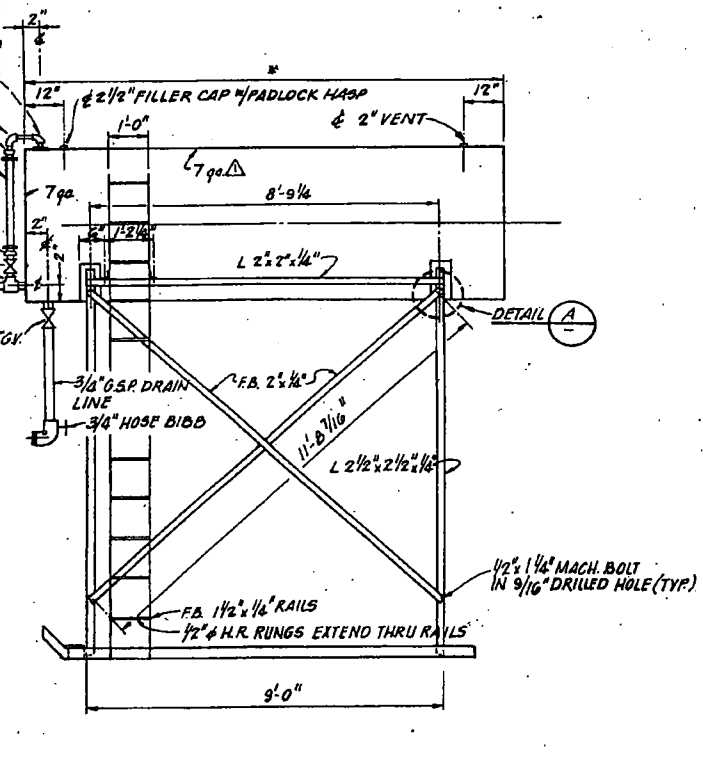
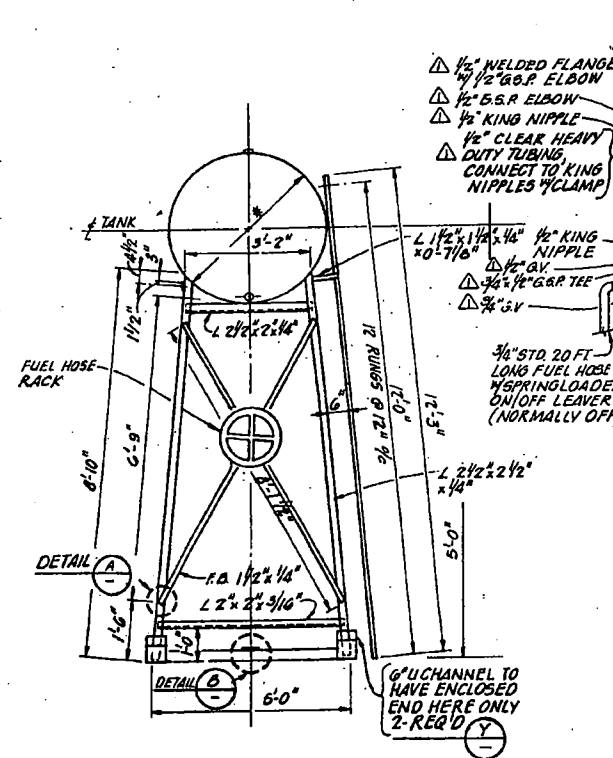
**REGIONAL SANITARY LANDFILL
MAINTENANCE BLDG.
SITE PLAN & DETAILS**

Drawn	N.W.	10/82
Checked	D.D.	10/82
Approved	B.D.	10/82
Job No.	81014	
Date	10/82	

SHEET NUMBER
10
OF 14 SHEETS



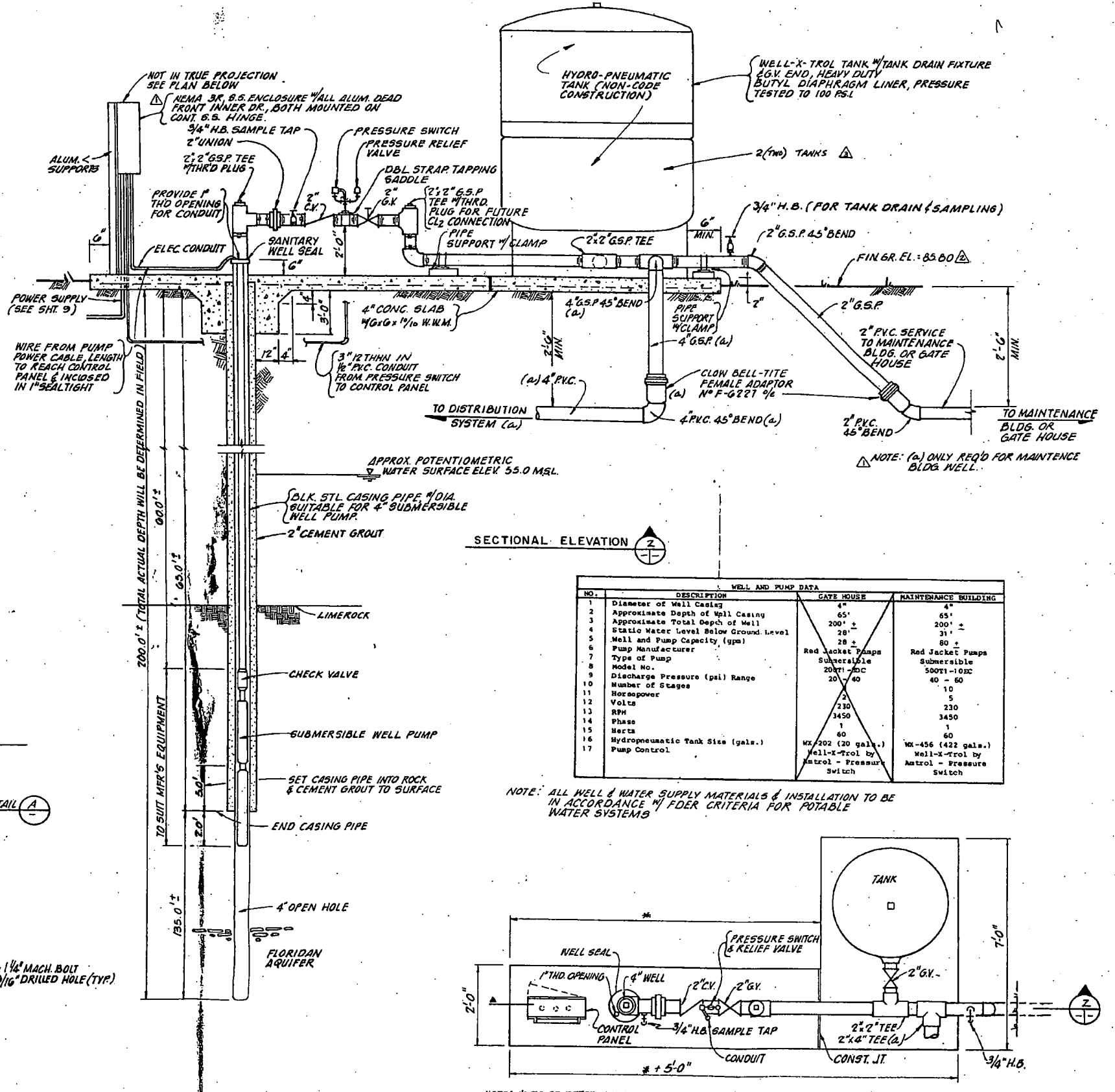
NOTE: ALL EXPOSED METAL AREAS SHALL BE COATED IN ACCORDANCE WITH THE PAINTING & FINISHING SECTION OF THE SPECIFICATIONS FOR EXTERIOR FERROUS METALS.



NOTE: * AS PER MPR'S EQUIPMENT.

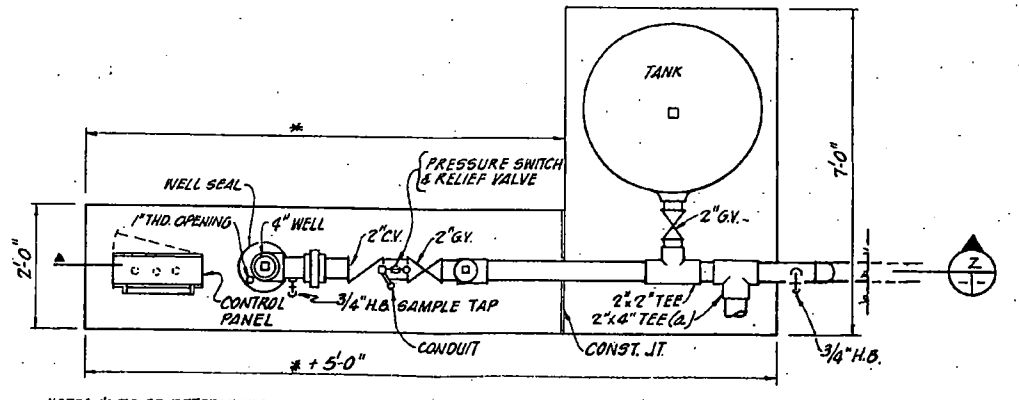
FUEL STORAGE TANK
N.T.S.

NOTE: EXTREME CARE SHALL BE EXERCISED WHEN MOVING FUEL TANK. IT SHALL ONLY BE MOVED WHEN TANK CONTAINS LESS THAN 50 (FIFTY) GALLONS.



WELL AND PUMP DATA			
NO.	DESCRIPTION	GATE HOUSE	MAINTENANCE BUILDING
1	Diameter of Well Casing	4"	4"
2	Approximate Depth of Well Casing	65'	65'
3	Approximate Total Depth of Well	200' ±	200' ±
4	Static Water Level Below Ground Level	28'	31'
5	Well and Pump Capacity (gpm)	28 ±	80 ±
6	Pump Manufacturer	Red Jacket Pumps	Red Jacket Pumps
7	Type of Pump	Submersible	Submersible
8	Model No.	200T1-102C	500T1-102C
9	Discharge Pressure (psi) Range	20 - 40	40 - 60
10	Number of Stages	2	10
11	Horsepower	2	5
12	Volts	230	230
13	RPH	1450	1450
14	Phase	1	1
15	Herz	60	60
16	Hydropneumatic Tank Size (gals.)	WK-202 (20 gals.)	WK-456 (422 gals.)
17	Pump Control	Well-X-Trol by Control - Pressure Switch	Well-X-Trol by Control - Pressure Switch

NOTE: ALL WELL & WATER SUPPLY MATERIALS & INSTALLATION TO BE IN ACCORDANCE WITH FDER CRITERIA FOR POTABLE WATER SYSTEMS



NOTE: * TO BE DETERMINED IN FIELD

WELL W/ STORAGE TANK
N.T.S.

MIRROR IMAGE REFER TO SHEET 5 SITE PLAN

RECORD DRAWING

NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. and is subject to change during the construction period to reflect the actual parameters of the improvements to be constructed.

The Envt. Engrs., Inc. is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

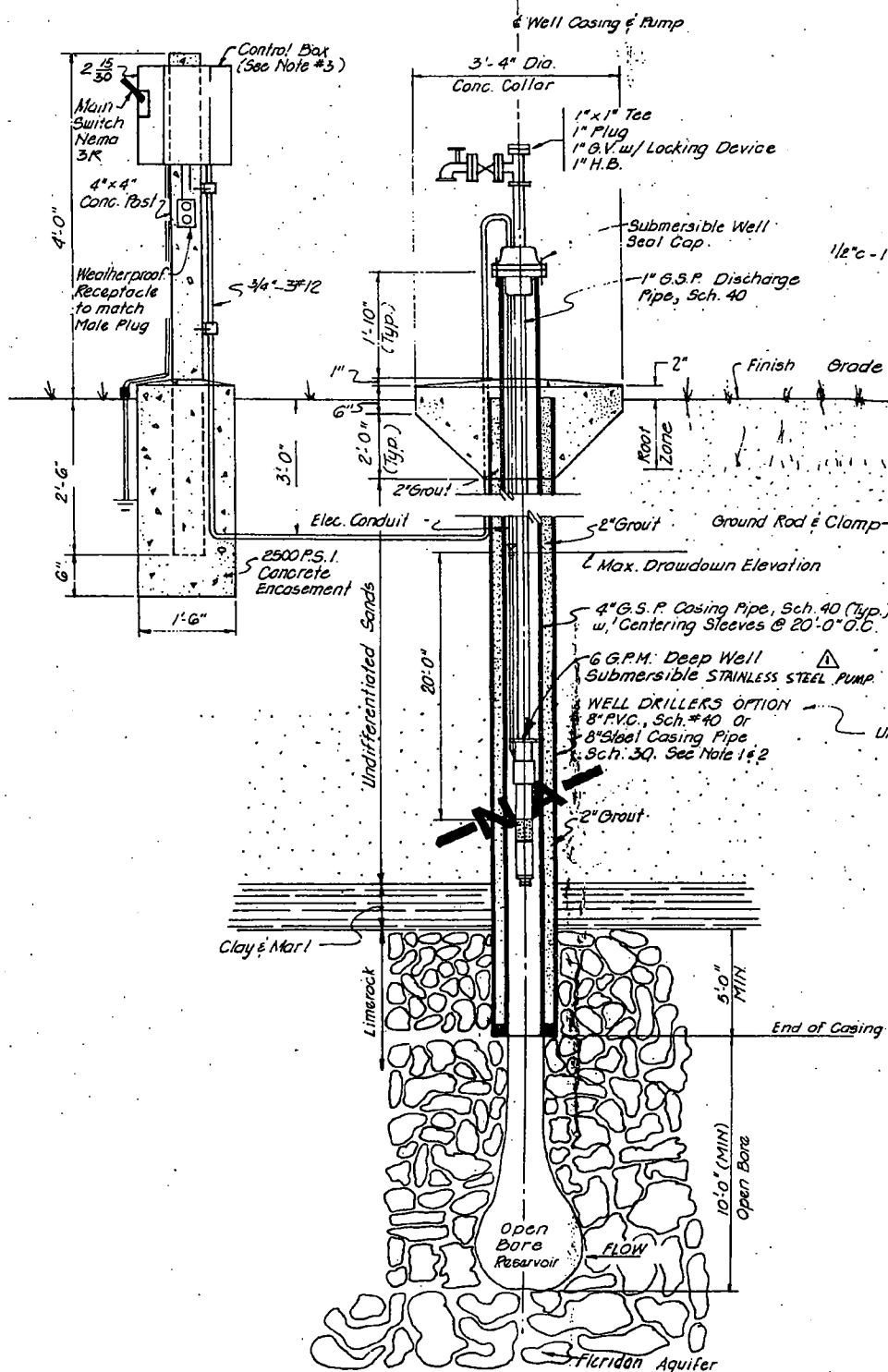
Hardee County, Florida
Regional Sanitary Landfill
WELL & MISC. DETAILS

ENVISORS, Inc.
Consulting Civil & Environmental Engineers
Economists, and Planners
Winter Haven, Tampa, & Margate, Florida

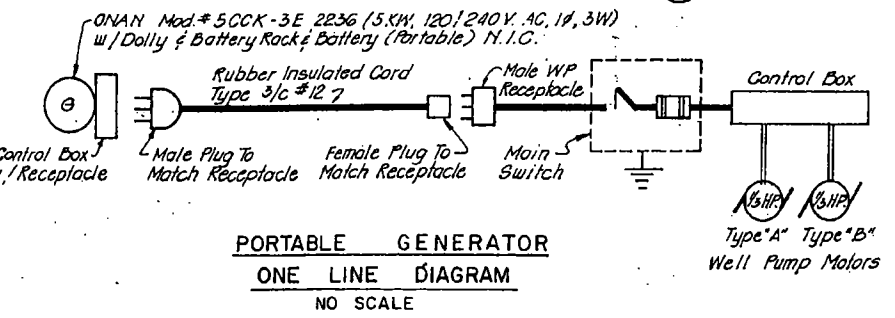
DESIGNED: []
DRAWN: []
CHECKED: []
APPROVED: []
JOB NO.: 81014
DATE: 10/82

REVISION DESCRIPTION
NO. DATE BY

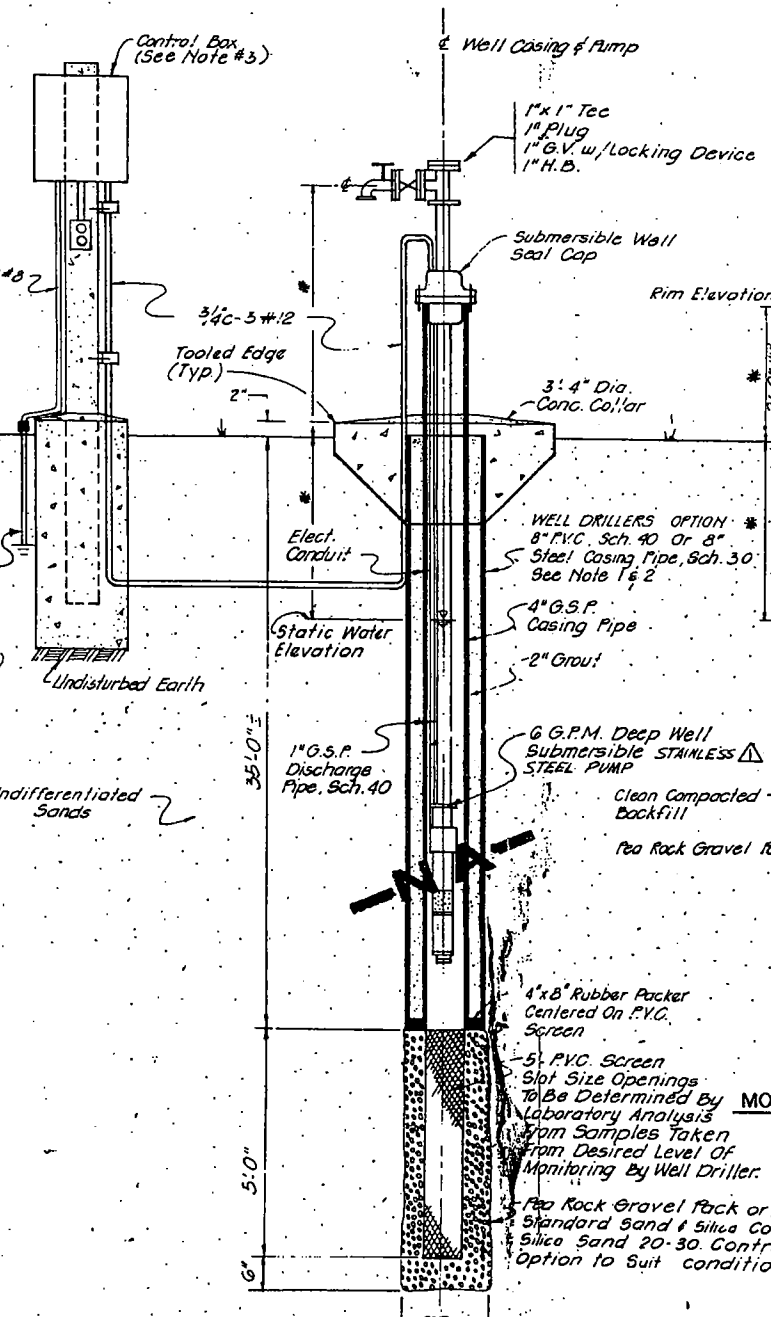
SHEET NUMBER
11
OF 14 SHEETS



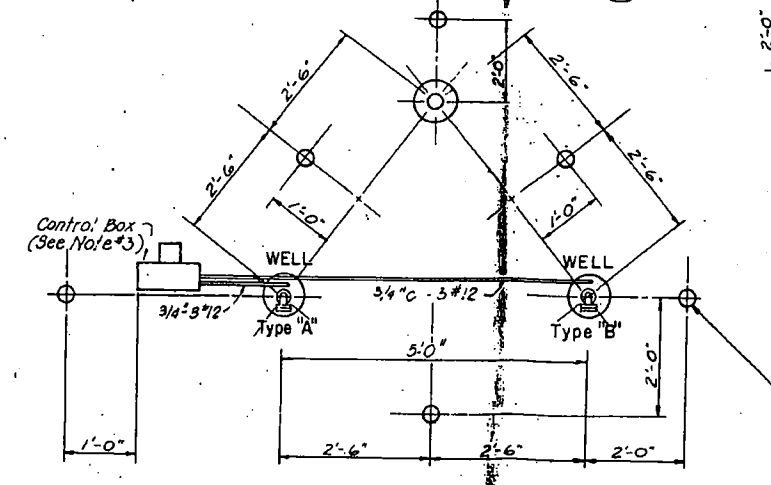
TYPE "A" MONITORING WELL DETAIL
NO SCALE



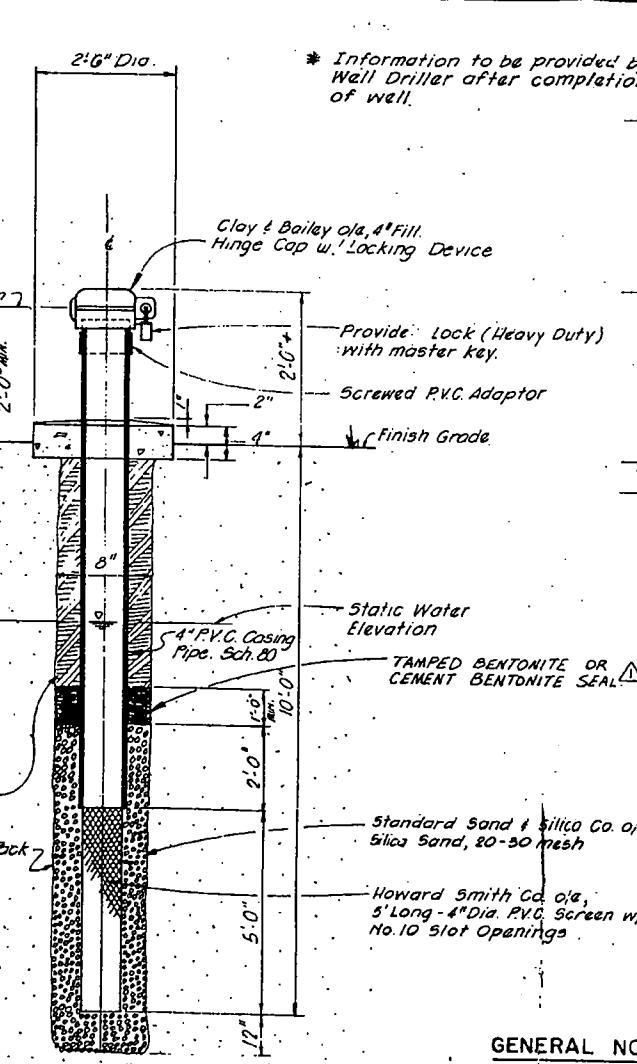
PORTABLE GENERATOR
ONE LINE DIAGRAM
NO SCALE



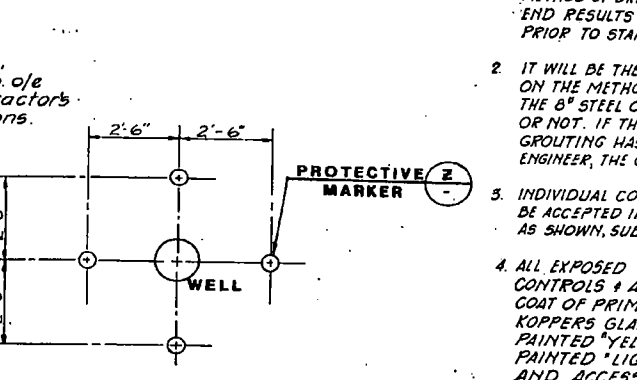
TYPE "B" MONITORING WELL DETAIL
N.T.S.



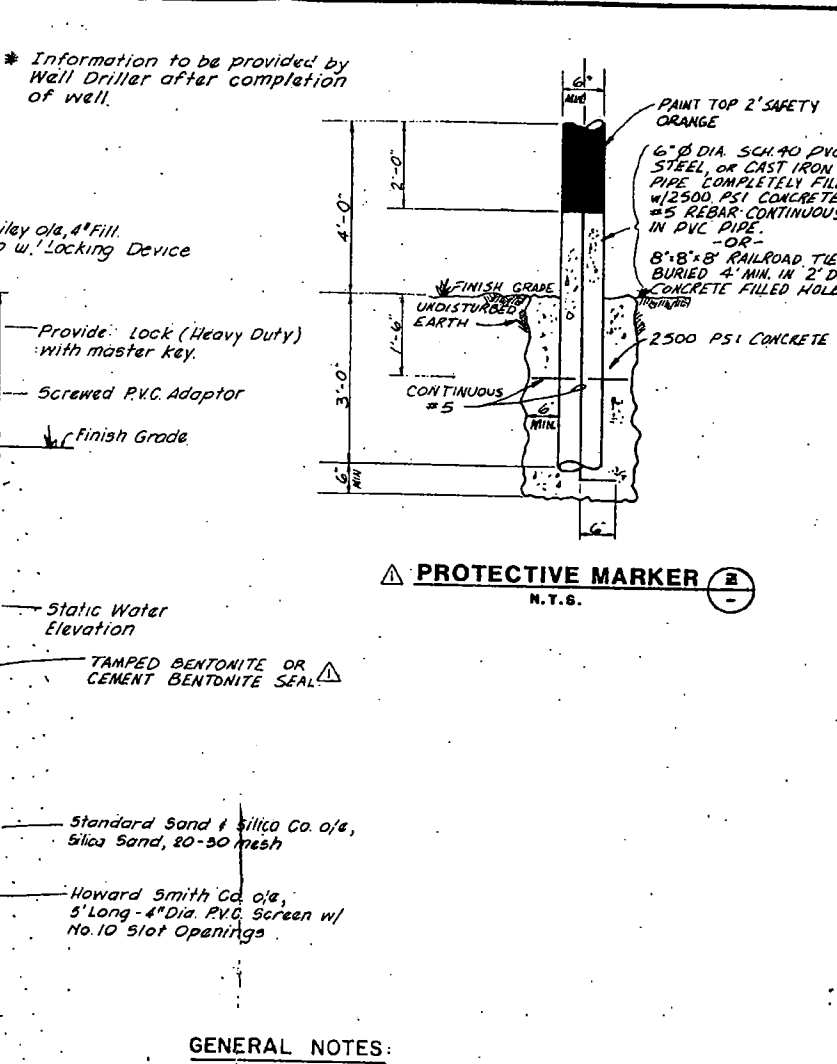
THREE WELL CLUSTER-PLAN
N.T.S.



TYPE "C" MONITORING WELL DETAIL
NO SCALE

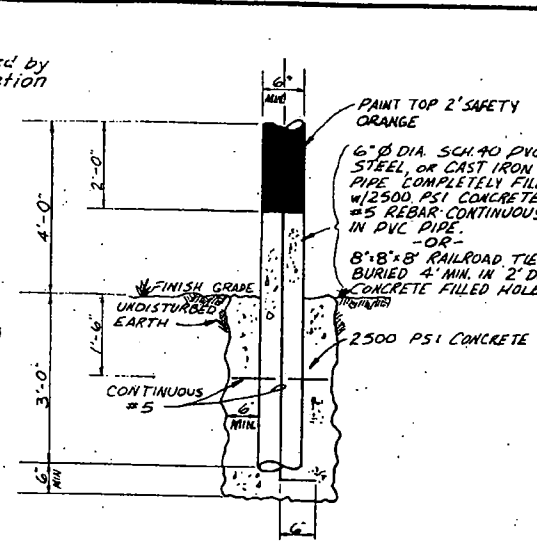


ONE WELL - PLAN
N.T.S.



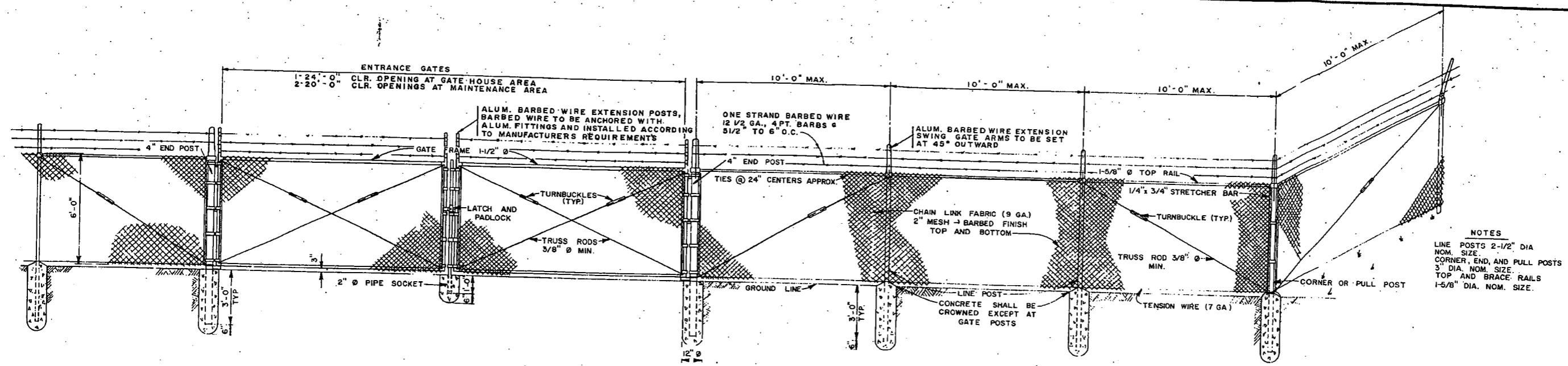
TWO WELL CLUSTER - PLAN
N.T.S.

- GENERAL NOTES:**
1. THE METHOD OF DRILLING THE THREE (3) MONITORING WELLS SHALL BE BY CABLE TOOL OR ROTARY DRILLING AT THE WELL DRILLER'S OPTION. METHOD OF DRILLING THE WELLS TO ACCOMPLISH THE END RESULTS SHALL BE APPROVED BY THE ENGINEER, PRIOR TO STARTING WORK.
 2. IT WILL BE THE WELL DRILLER'S OPTION, DEPENDING ON THE METHOD OF DRILLING THE WELL, WHETHER THE 8" STEEL OR PVC LINER CASING PIPE IS REQUIRED OR NOT. IF THE CASING IS REQUIRED AND PULLED AFTER GROUTING HAS BEEN COMPLETED AND ACCEPTED BY THE ENGINEER, THE CASING PIPE SHALL BELONG TO THE WELL DRILLER.
 3. INDIVIDUAL CONTROL BOXES FOR WELL TYPE "A" & "B" WILL BE ACCEPTED IN LIEU OF ONE (1) COMMON CONTROL BOX AS SHOWN, SUBJECT TO THE APPROVAL OF THE ENGINEER.
 4. ALL EXPOSED SURFACES OF THE MONITORING WELLS, CONTROLS & ACCESSORIES TO BE PAINTED WITH ONE (1) COAT OF PRIMER AND TWO (2) FINISHED COATS OF KOPPERS GLAMORTEX ENAMEL. CASING PIPE TO BE PAINTED "YELLOW", WITH CAP, VALVES AND FITTINGS PAINTED "LIGHT BLUE". CONTROL BOX, CONDUITS AND ACCESSORIES SHALL BE PAINTED "LIGHT BLUE".

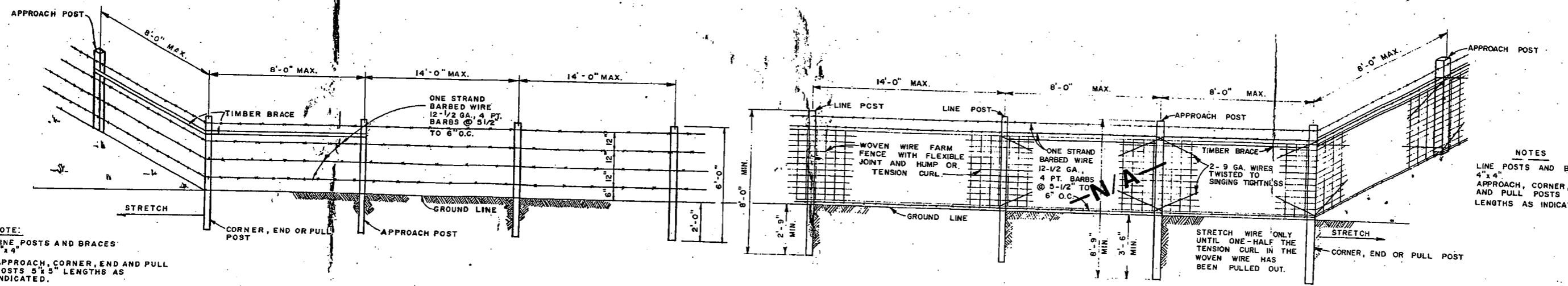


PROTECTIVE MARKER
N.T.S.

HARDEE COUNTY, FLORIDA		REGIONAL SANITARY LANDFILL		MONITORING WELL - DETAILS	
Designed	C.J.F.	Checked	J.P.P.	Approved	D.M.P.
Drawn		Job No.	P.1014	Date	10/82
Florida Registered Professional Engineer, No. 10000					
ENVISSIONS, Inc. Consulting Civil & Environmental Engineers, Economists and Planners WINTER HAVEN, TAMPA, & MARGATE, FLORIDA					
NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. and is not to be construed as a contract. The contractor during the construction period is to select the materials and methods of construction to be used. The Engineer, Envisions, Inc., is not responsible for the accuracy or reliability of the Record Drawing information depicted hereon.					
SHEET NUMBER 12					

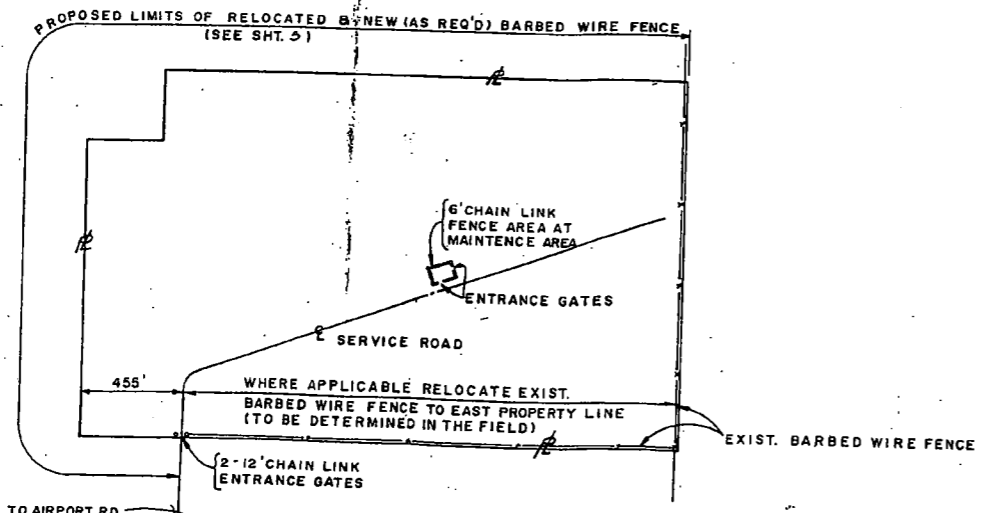


TYPICAL CHAIN LINK FENCE DETAIL
NO SCALE

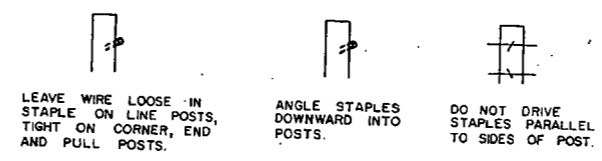


TYPICAL BARBED WIRE FENCE
NO SCALE
DEDUCTIBLE ALTERNATE NO. 6

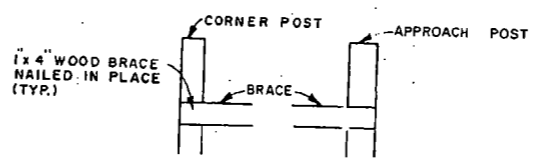
TYPICAL FARM FENCE DETAIL
NO SCALE



FENCING PLAN
SCALE: 1/4" = 400'



STAPLING DETAILS
NO SCALE

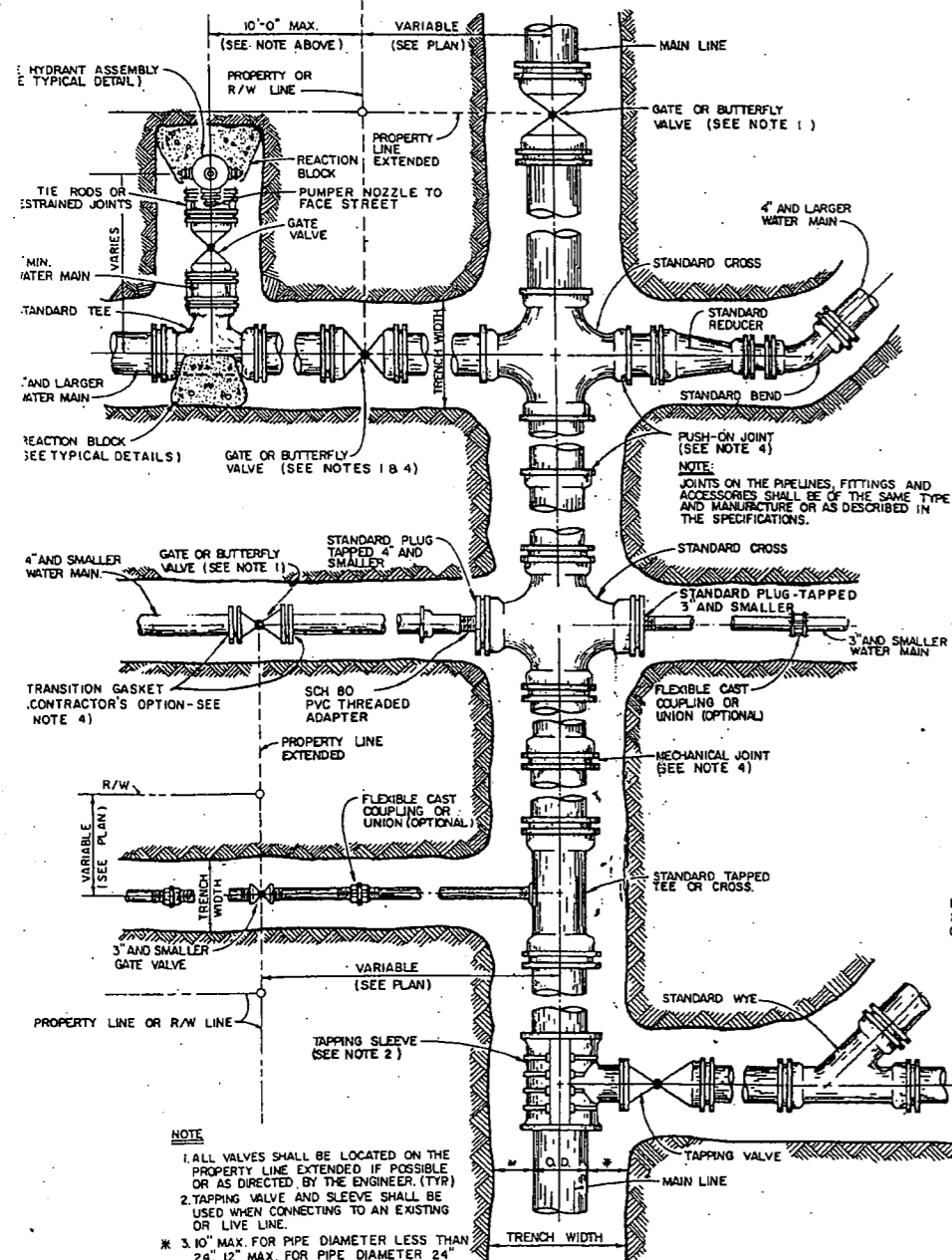


TIMBER BRACING DETAILS
NO SCALE

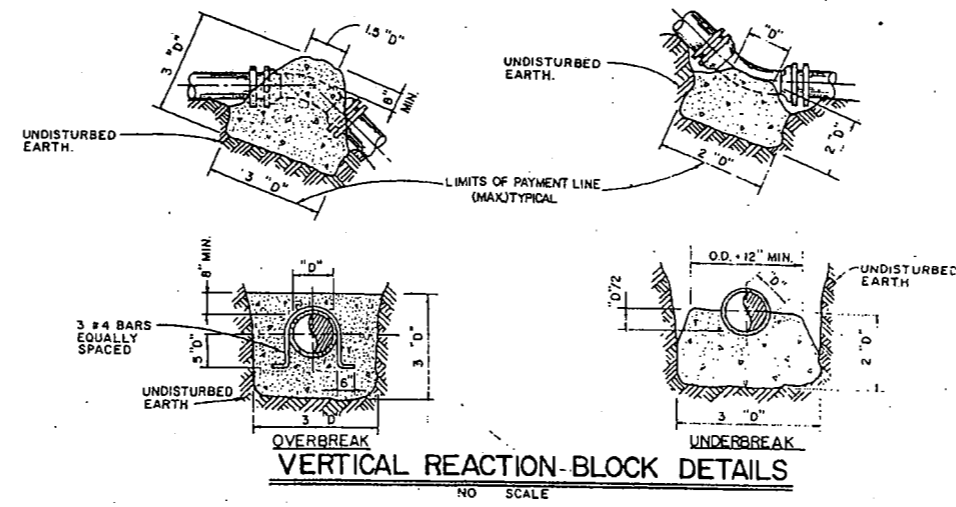
RECORD DRAWING
NOTE: The information presented herein is based upon drawings, specifications, addenda, shop drawings, modifications, etc. annotated by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.
The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted herein.

Project	Drawn	C.S.L.	Checked	D.D.	Approved	D.D.	Rev. No.	81014	Date	10/82
<p>HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL FENCING</p> <p>Envisors, Inc. Consulting Civil & Environmental Engineers Economists and Planners WINTER HAVEN, TAMPA, & MARGATE, FLORIDA</p>										
<p>SHEET NUMBER 13 OF 14 SHEETS</p>										

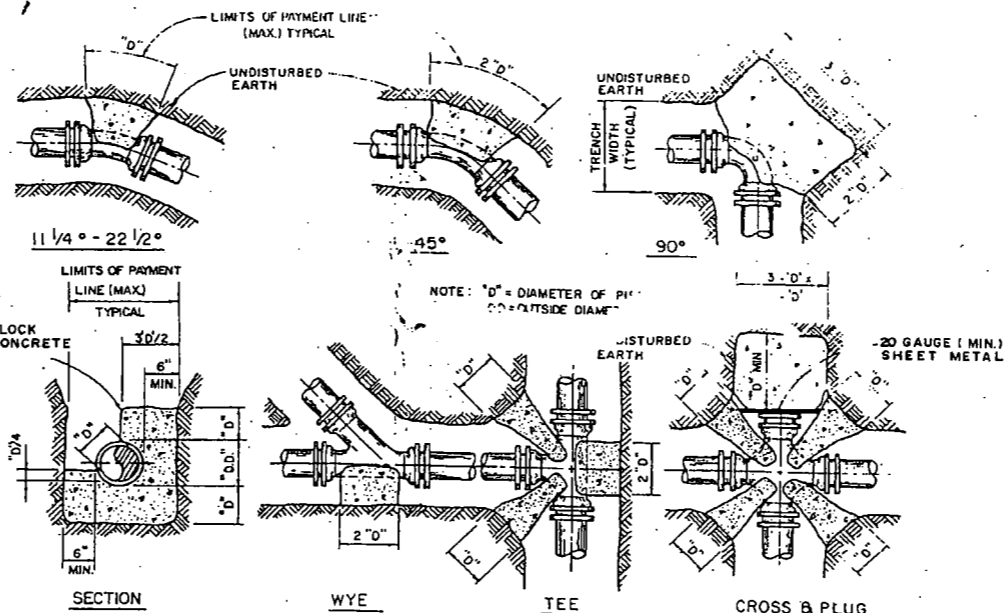
NOTE
 IF FIRE HYDRANT IS NOT LOCATED AS SHOWN BELOW AT THE STREET INTERSECTION, INSTALL HYDRANT ON PROPERTY LINE EXTENSION. DO NOT INSTALL IN ANY OTHER LOCATION UNLESS OTHERWISE INDICATED OR SHOWN BY THE ENGINEER.



- NOTE**
1. ALL VALVES SHALL BE LOCATED ON THE PROPERTY LINE EXTENDED IF POSSIBLE OR AS DIRECTED BY THE ENGINEER. (TYR)
 2. TAPPING VALVE AND SLEEVE SHALL BE USED WHEN CONNECTING TO AN EXISTING OR LIVE LINE.
 3. 10" MAX. FOR PIPE DIAMETER LESS THAN 24" 12" MAX. FOR PIPE DIAMETER 24" AND LARGER.
 4. ALL CAST IRON/DUCTILE IRON FITTINGS, VALVES, AND ACCESSORIES TO BE INSTALLED ON PVC PIPE.

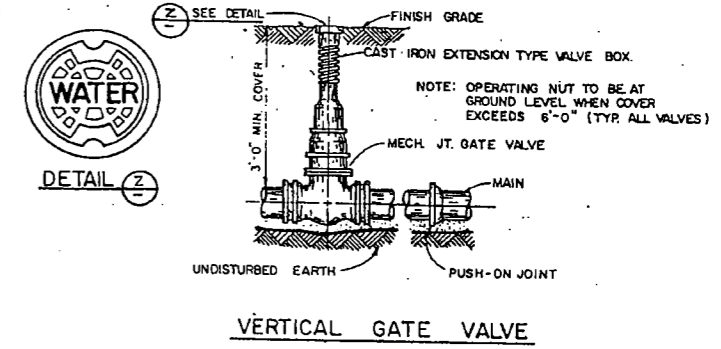


VERTICAL REACTION-BLOCK DETAILS
 NO SCALE

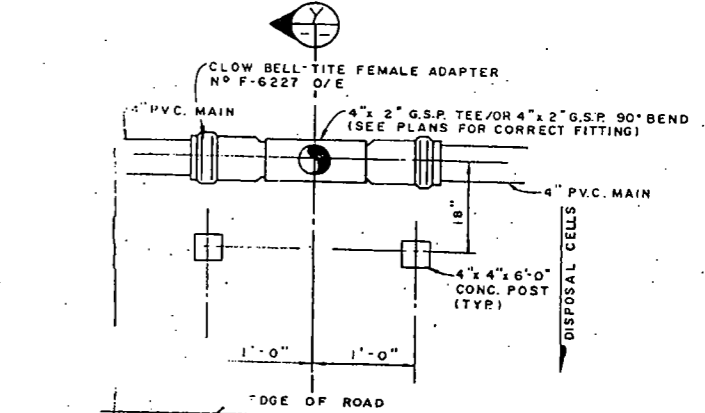


HORIZONTAL REACTION BLOCK DETAILS
 NO SCALE

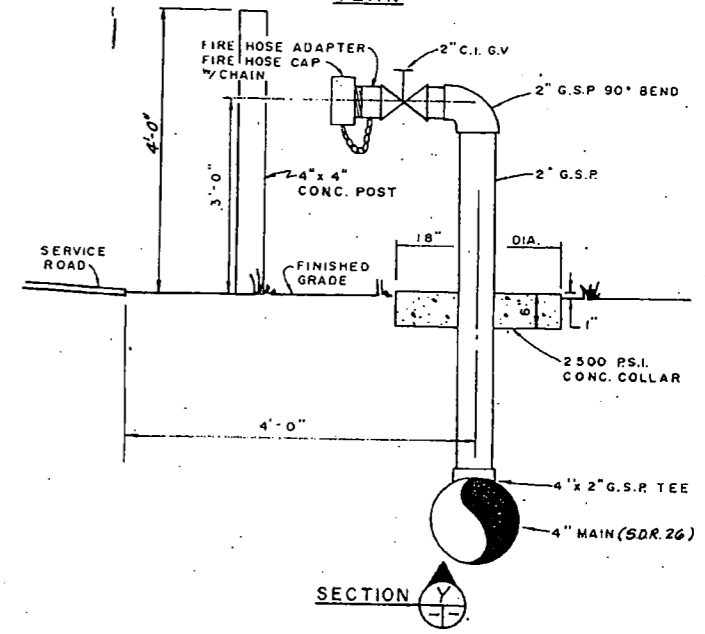
NOTE: REACTION BLOCK DIMENSIONS MAY BE MODIFIED IN THE FIELD BY THE ENGINEER DEPENDING ON THE SOIL BEARING PRESSURE. DIM. SHOWN ARE MINIMUM.



VERTICAL GATE VALVE



PLAN



SECTION

TYPICAL WATER RISER DETAIL

Designed	C.S.L.	By	Chl.
Drawn	D.D.	Revision	Description
Checked	D.D.		
Approved	D.D.		
Job No.	81014		
Date	12/82	No.	

HARDEE COUNTY, FLORIDA
 REGIONAL SANITARY LANDFILL
WATER STANDARD DETAILS
 Florida Registered Professional Engineer No. 13097

ENVIORS, Inc.
 Consulting Civil & Environmental Engineers
 Economists and Planners
 WINTER HAVEN, TAMPA, & MARGATE, FLORIDA

RECORD DRAWING
 NOTE: The information presented herein is based upon drawings, specifications, addenda, shop drawings, modifications, etc. annotated by the contractor during the construction period to reflect the in-situ conditions of the improvements to be constructed.
 The E.C. or ENVIORS, Inc. is not responsible for the accuracy or veracity of the Record Drawing information depicted herein.

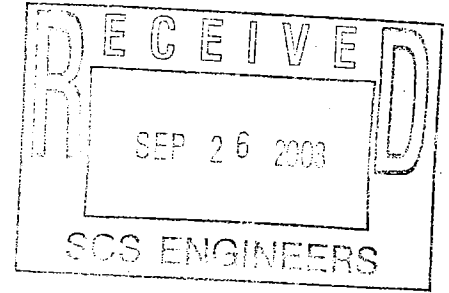
D.E.P.
 JUN - 6 1997
 TAMPA

SHEET NUMBER
14
 OF 14 SHEETS

ATTACHMENT A-5
REVISED SECTION E.15

ATTACHMENT A-6

REVISED FIGURE 1 OF 1 VIDEOTAPE



FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING-PIPELINE TV INSPECTION-PIPE LOCATING

37 Windward Island
Clearwater Fl 33767
www.floridajetclean.com

TEL : 727-462-5516
800-226-8013
FAX : 727-442-2222

FAX/MEMORANDUM

DATE : 9/25/2003
TO : Joe McNeill
FROM : Graeme Towns
SUBJECT : Hardee County Landfill

Thank you for the copy of the tape received for review in connection with footage discrepancies.

Our findings are as follows.

1. The major difference is Item # 7. on the Video Log (MH 7 to Lift Station) and we find that an incorrect footage has been recorded on the report. This was a result of reading the final tape footage after recovering the camera from a fall into the lift station (with cable length adjustments to retrieve the camera). Examination of the tape will show a correct recorded footage of 613' and not the 562' shown in the report. This equates to a 9' difference and is roughly in line with the other footage variations.
2. All other line segments as shown extend from manhole to manhole as recorded and seen on screen.

Revised corrected reports are enclosed and we regret the confusion.

Regards,

A handwritten signature in cursive script that reads "Graeme Towns".

FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS

37 WINDWARD ISLAND
CLEARWATER, FL 33767-2322
TEL: 800-226-8013 FAX: 727-442-2222

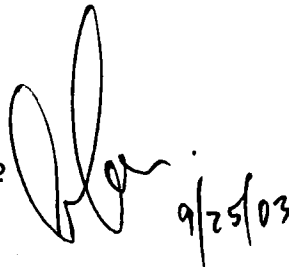
HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT

All pipes jetcleaned fully without obstruction and video inspected fully from manhole to manhole.

While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.
37 WINDWARD ISLAND
CLEARWATER FL 33767-2322
TEL 800-226-8013



A handwritten signature in black ink, followed by the date 9/25/03.

FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS

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CLEARWATER, FL 33767-2322
TEL: 800-226-8013 FAX: 727-442-2222

HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

4/14/03 - 8" CORRUGATED HDPE

1. Manhole 3 toward Manhole 4	420'
2. Manhole 3 toward Manhole 2	389'
3. Manhole 4 toward Manhole 5	389'
4. Manhole 2 toward Manhole 1	445'
5. Manhole 1 toward Manhole 8	114'
6. Manhole 8 toward lift station	94'
7. Manhole 7 toward lift station	613'
8. Manhole 7 toward Manhole 6	146'
9. Manhole 6 toward Manhole 5	392'

FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS

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CLEARWATER, FL 33767-2322
TEL: 800-226-8013 FAX: 727-442-2222

HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

4/14/03 - 8" CORRUGATED HDPE

TAPE 1

- | | | |
|-------------------------------|------|---|
| 1. Manhole 3 toward Manhole 4 | 420' | Submerged at mouth until 38'. 49' submerged until 58'. 135' submerged until 165'. 200' submerged until 205'. 326' submerged until 347'. 411' submerged until 418'. 420' Manhole 4. |
| 2. Manhole 3 toward Manhole 2 | 237' | Submerged at mouth of pipe until 5'. 7' possible separation and roots. 30' submerged until 66'. 82' submerged until 90'. 117' submerged until 125'. 160' submerged until 162'. 169' submerged until 181'. 188' submerged until 192'. 201' submerged until 210'. 220' submerged until 230'. 237' possible separation. Will do reverse set-up. Video also in reverse. |
| 3. Manhole 2 toward Manhole 3 | 152' | 73' submerged until 80'. 85' submerged until 89'. 97' submerged until 106'. 112' submerged until 136'. 152' possible separation. See # 2 for reverse set-up. Video also in reverse. |
| 4. Manhole 4 toward Manhole 5 | 388' | 144' submerged until 152'. 168' submerged until 170'. 182' leachate on lens. No visual until Manhole 5 at 388'. Video in reverse. Clear picture. |

4/16/03

- | | | |
|-------------------------------|------|---|
| 5. Manhole 2 toward Manhole 1 | 445' | All video in reverse. 445' submerged until 30'. Brief picture at 55', 48' and 40'. 8' submerged until 3'. |
|-------------------------------|------|---|

6. Manhole 1 toward Manhole 8	114'	114' Manhole 8.
7. Manhole 8 toward lift station	94'	94' lift station
8. Manhole 7 toward lift station	613'	4' submerged until 20'. 60' submerged until 76'. 239' pipe egg-shaped. 268' submerged until 400'. 403' submerged until 417'. 424' submerged until 434'. 535' submerged until 537'. 562' lift station. Also in reverse.
9. Manhole 7 toward Manhole 6	132'	132' pipe separated. Will do reverse set-up.
10. Manhole 6 toward Manhole 7	18'	14' submerged until 16'. 18' pipe separated. See # 9.
11. Manhole 6 toward Manhole 5	392'	Submerged at mouth of pipe until 20'. 28' submerged until 38'. 48' submerged until 58'. 64' submerged until 103'. 129' submerged until 136'. 144' submerged until 168'. 175' submerged until 180'. 185' submerged until 204'. 215' submerged until 222'. 224' submerged until 245'. 260' submerged until 263'. 264' submerged until 323'. 324' submerged until 339'. Continue on Tape 2.

3

TAPE 2

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
--------------------------------	------	--------------------------------------

FLORIDA JETCLEAN INC.

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VIDEO PIPELINE INSPECTION
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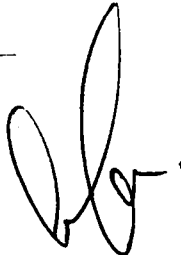
HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT

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While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.
37 WINDWARD ISLAND
CLEARWATER FL 33767-2322
TEL 800-226-8013



9/25/03

FLORIDA JETCLEAN INC.

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HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

4/14/03 - 8" CORRUGATED HDPE

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HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

4/14/03 – 8" CORREGATED HDPE

TAPE 1

- | | | |
|-------------------------------|------|---|
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| 3. Manhole 2 toward Manhole 3 | 152' | 73' submerged until 80'. 85' submerged until 89'. 97' submerged until 106'. 112' submerged until 136'. 152' possible separation. See # 2 for reverse set-up. Video also in reverse. |
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4/16/03

- | | | |
|-------------------------------|------|---|
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|-------------------------------|------|---|

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9. Manhole 7 toward Manhole 6	132'	132' pipe separated. Will do reverse set-up.
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3

TAPE 2

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
--------------------------------	------	--------------------------------------

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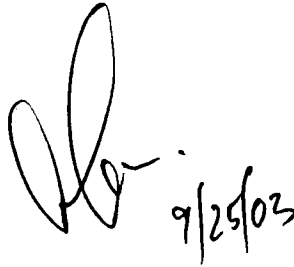
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FLORIDA JETCLEAN INC.
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Handwritten signature and date: 9/25/03

FLORIDA JETCLEAN INC.

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HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

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HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

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4/16/03

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3

TAPE 2

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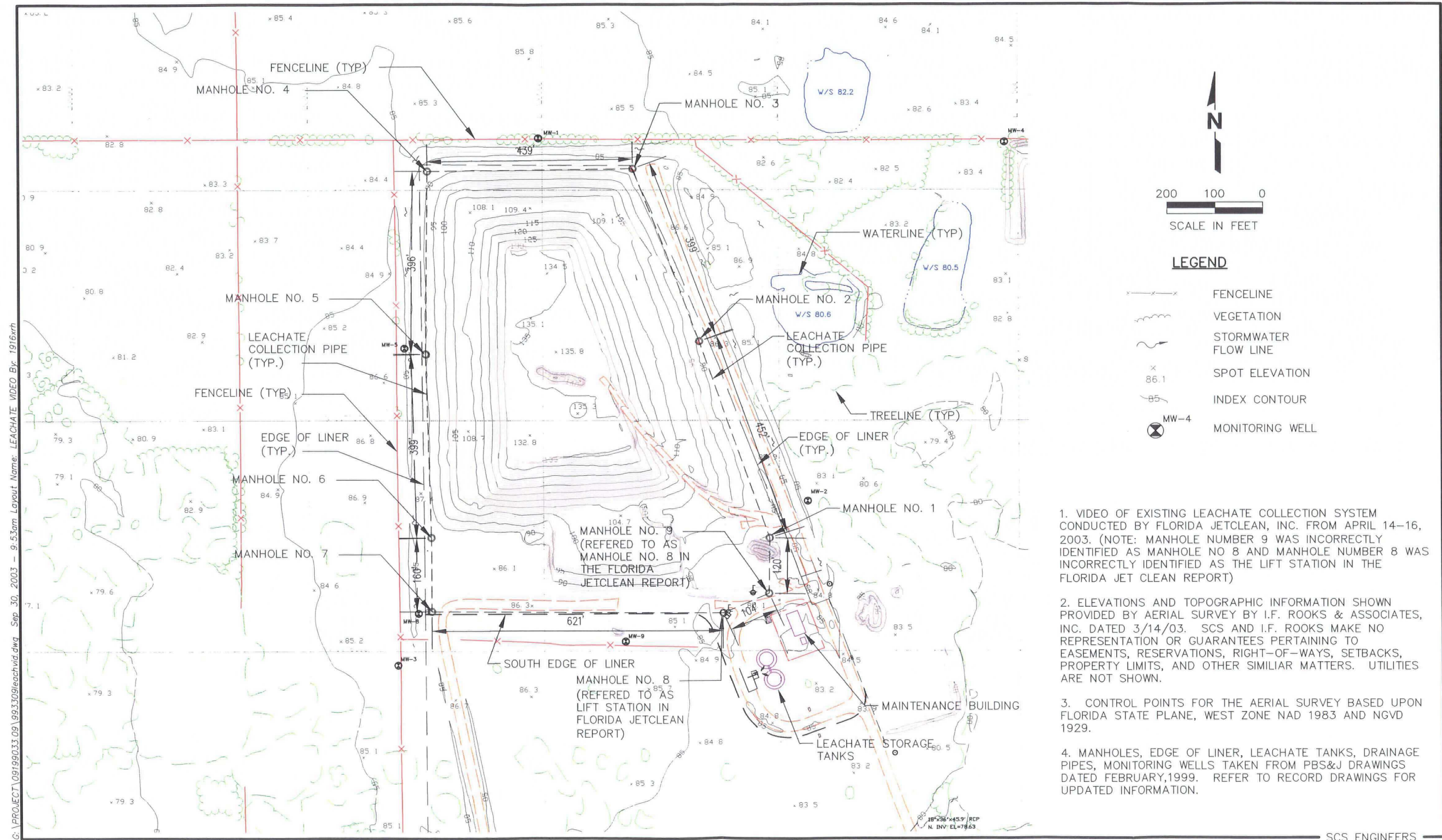


Figure. Videotape of Leachate Collection System, Hardee County Landfill, Hardee County, Florida.

G:\PROJECT\09199033\09\99\3309\leachvid.dwg Sep 30, 2003 - 9:53am Layout Name: LEACHATE VIDEO BY 1916xrh

1. VIDEO OF EXISTING LEACHATE COLLECTION SYSTEM CONDUCTED BY FLORIDA JETCLEAN, INC. FROM APRIL 14-16, 2003. (NOTE: MANHOLE NUMBER 9 WAS INCORRECTLY IDENTIFIED AS MANHOLE NO 8 AND MANHOLE NUMBER 8 WAS INCORRECTLY IDENTIFIED AS THE LIFT STATION IN THE FLORIDA JET CLEAN REPORT)
2. ELEVATIONS AND TOPOGRAPHIC INFORMATION SHOWN PROVIDED BY AERIAL SURVEY BY I.F. ROOKS & ASSOCIATES, INC. DATED 3/14/03. SCS AND I.F. ROOKS MAKE NO REPRESENTATION OR GUARANTEES PERTAINING TO EASEMENTS, RESERVATIONS, RIGHT-OF-WAYS, SETBACKS, PROPERTY LIMITS, AND OTHER SIMILIAR MATTERS. UTILITIES ARE NOT SHOWN.
3. CONTROL POINTS FOR THE AERIAL SURVEY BASED UPON FLORIDA STATE PLANE, WEST ZONE NAD 1983 AND NGVD 1929.
4. MANHOLES, EDGE OF LINER, LEACHATE TANKS, DRAINAGE PIPES, MONITORING WELLS TAKEN FROM PBS&J DRAWINGS DATED FEBRUARY,1999. REFER TO RECORD DRAWINGS FOR UPDATED INFORMATION.

SCS ENGINEERS

ATTACHMENT A-7

LEACHATE TANK COATING CONFIRMATION



P.O. Box 2907
Kansas City, KS 66110-2907
Telephone: 913-621-3700 • Fax: 913-621-2145

August 20, 2003

Ms. Lindsey Kennelly
SCS Engineers
3012 U.S. Hwy 301
Suite 700
Tampa, FL 33619-2242

RE: Columbian TecTank Interior Lining

Dear Ms. Kennelly:

This letter is being written to provide assurances that Trico-Bond 478 and Thermo-thane 7000 are identical thermally-cured epoxy systems.

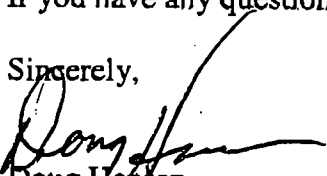
In 2001, Columbian Steel (CTT) purchased A.O. Smith's glass tank division (Engineered Storage Products) and their API bolted tank division, formerly known as Peabody TecTank. The new API bolted tank company – Columbian TecTank.

Both CTT and Peabody TecTank bought their interior coating system, Epicon 925, from the same coating supplier – but trademarked it under different names – Thermo-thane 7000 and Trico-Bond 478. Both are identical formulations.

Enclosed is the NSF listing for Epicon 925, Thermo-thane 7000 and Epicon 925 – again, identical products with different names.

If you have any questions, please let me know.

Sincerely,



Doug Hansen
V.P. - Sales

ATTACHMENT A-8
SLOPE STABILITY ANALYSIS

The existing landfill waste mound has been operating without any reported slope failures or slides since 1983. The purpose of this series of slope stability models is to:

- Estimate the existing horizontal and vertical shear strength of the existing balefill,
- Using the estimated horizontal and vertical shear strength parameters that were back calculated, estimate the slope stability Factors of Safety for the proposed three (horizontal) to 1 (vertical) sideslopes. Compute both the Factor of Safety of the proposed balefill operation with and without equipment loading.

SLOPE STABILITY MODEL LOCATION

Estimation of Existing balefill strength

Deep Rotation Failure

With Equipment Loads

Factor of Safety = 1.94

Wedge (Block) Failure along bales

With Equipment Loads

Factor of Safety = 1.04 (upper failure)

With Equipment Loads

Factor of Safety = 1.14

Results: By setting the horizontal and vertical shear strength to the lowest values, a Factor of Safety of 1.0 was computed. A Factor of Safety equal to 1.0 indicated the balefill is in equilibrium with driving forces (bale weights and equipment loads) with the resisting forces (shear strength of the bales). This is a very conservative estimate of the existing conditions observed at the existing landfill since CAT D7 dozer have been operating on the landfill with any observed slips or slope failures.

Balefill Strength Back calculated

Horizontal – Phi angle of 13 degrees and cohesion of 0 pounds per square foot

Vertical – Phi angle of 27 degrees and cohesion of 70 pounds per square foot

Proposed Sideslope Stability Analysis (Upper Third of Waste Mound)

Wedge (Block) Failure along bales

Without Equipment Loads

Factor of Safety = 1.95

With Equipment Loads

Factor of Safety = 1.27

Proposed Sideslope Stability Analysis (Middle of Waste Mound)

Wedge(Block) Failure along bales

Without Equipment Loads

Factor of Safety = 1.67

With Equipment Loads

Factor of Safety = 1.32

Proposed Sideslope Stability Analysis
(Lower Third of Waste Mound)

Wedge(Block) Failure along bales
Without Equipment Loads
With Equipment Loads

Factor of Safety = 1.56
Factor of Safety = 1.35

Proposed Sideslope Stability Analysis
(Through of Waste Mound)

Deep Rotational Failure along bales
Without Equipment Loads
With Equipment Loads

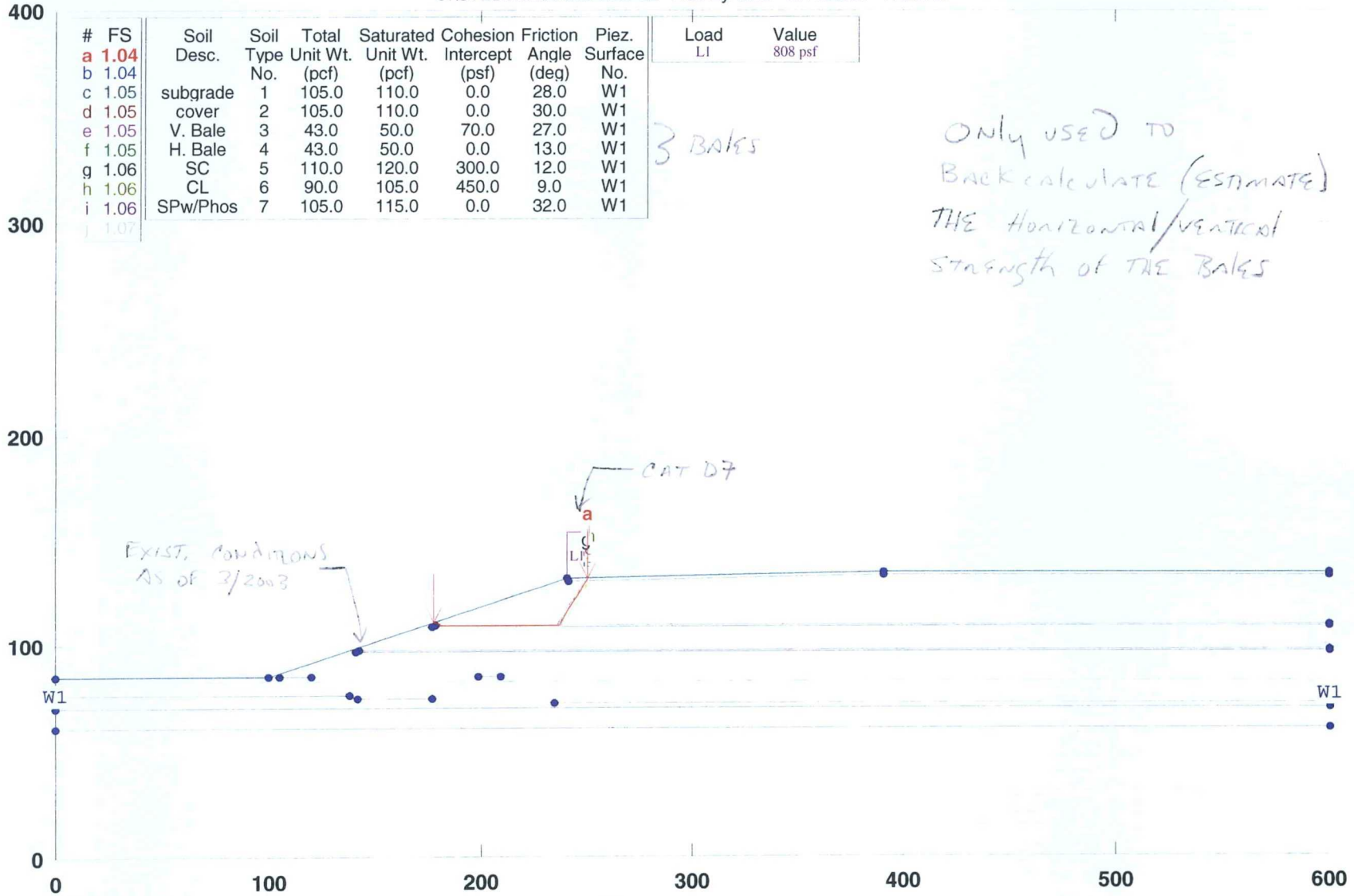
Factor of Safety = 2.09
Factor of Safety = 1.98

Results: Using the conservative back calculated values for the horizontal and vertical shear strengths for the balefill and incorporating a series of slip plane blocks (crushing bales to eliminate horizontal seams) the proposed Three (H) to One (V) sideslopes are stable. Refer to the permit plans for the balefill placement and slip plane blocks (crushed bales).

**ESTIMATION OF EXISTING BALEFILL STRENGTH
USING EXISTING CONDITIONS AS OF MARCH, 2003**

Hardee County Landfill - Existing 2003 Hardee County, Florida

C:\STEDWIN\HARD-EX.PL2 Run By: JHO 9/11/2003 11:28PM



Only used to
Back calculate (estimate)
THE HORIZONTAL/VERTICAL
STRENGTH OF THE BAKES

3 BAKES

SCS ENGINEERS

PCSTABL5M/si FSmin=1.04
Safety Factors Are Calculated By The Modified Janbu Method

** PCSTABL5M **
 by
 Purdue University

--Slope Stability Analysis--
 Simplified Janbu, Simplified Bishop
 or Spencer`s Method of Slices

Run Date: 9/11/2003
 Time of Run: 11:28PM
 Run By: JHO
 Input Data Filename: C:hard-ex.
 Output Filename: C:hard-ex.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:hard-ex.PLT

**PROBLEM DESCRIPTION Hardee County Landfill - Existing 2003
 Hardee County, Florida**

BOUNDARY COORDINATES

4 Top Boundaries
 27 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	100.00	85.00	1
2	100.00	85.00	241.00	132.00	2
3	241.00	132.00	391.00	135.00	2
4	391.00	135.00	600.00	135.00	2
5	100.00	85.00	104.74	85.00	1
6	104.74	85.00	140.74	97.00	3
7	140.74	97.00	142.24	97.50	4
8	142.24	97.50	176.74	109.00	3
9	176.74	109.00	178.24	109.50	4
10	178.24	109.50	241.27	130.50	3
11	241.27	130.50	391.00	133.50	3
12	391.00	133.50	600.00	133.50	3
13	178.24	109.50	600.00	109.50	4
14	176.74	109.00	600.00	109.00	3
15	142.24	97.50	600.00	97.50	4
16	140.74	97.00	600.00	97.00	3
17	104.74	85.00	120.00	85.00	1
18	120.00	85.00	138.00	76.00	1
19	.00	76.00	138.00	76.00	5
20	138.00	76.00	142.00	74.00	5
21	142.00	74.00	177.00	74.00	5
22	177.00	74.00	199.00	85.00	5
23	199.00	85.00	209.00	85.00	5
24	209.00	85.00	235.00	72.00	5
25	235.00	72.00	600.00	72.00	5
26	.00	70.00	600.00	70.00	6
27	.00	60.00	600.00	60.00	7

ISOTROPIC SOIL PARAMETERS

7 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							
2							
3							
4							
5							
6							
7							

1	105.0	110.0	.0	28.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	43.0	50.0	70.0	27.0	.00	.0	1
4	43.0	50.0	.0	13.0	.00	.0	1
5	110.0	120.0	300.0	12.0	.00	.0	1
6	90.0	105.0	450.0	9.0	.00	.0	1
7	105.0	115.0	.0	32.0	.00	.0	1

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	82.50
2	600.00	82.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	241.00	250.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

The Active And Passive Portions Of The Sliding Surfaces Are Generated According To The Rankine Theory.

1000 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 4.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	180.00	109.25	200.00	109.25	.25
2	210.00	109.25	260.00	109.25	.25

Following Displayed is the Most Critical Of The Trial Failure Surface Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 14 Coordinate Points

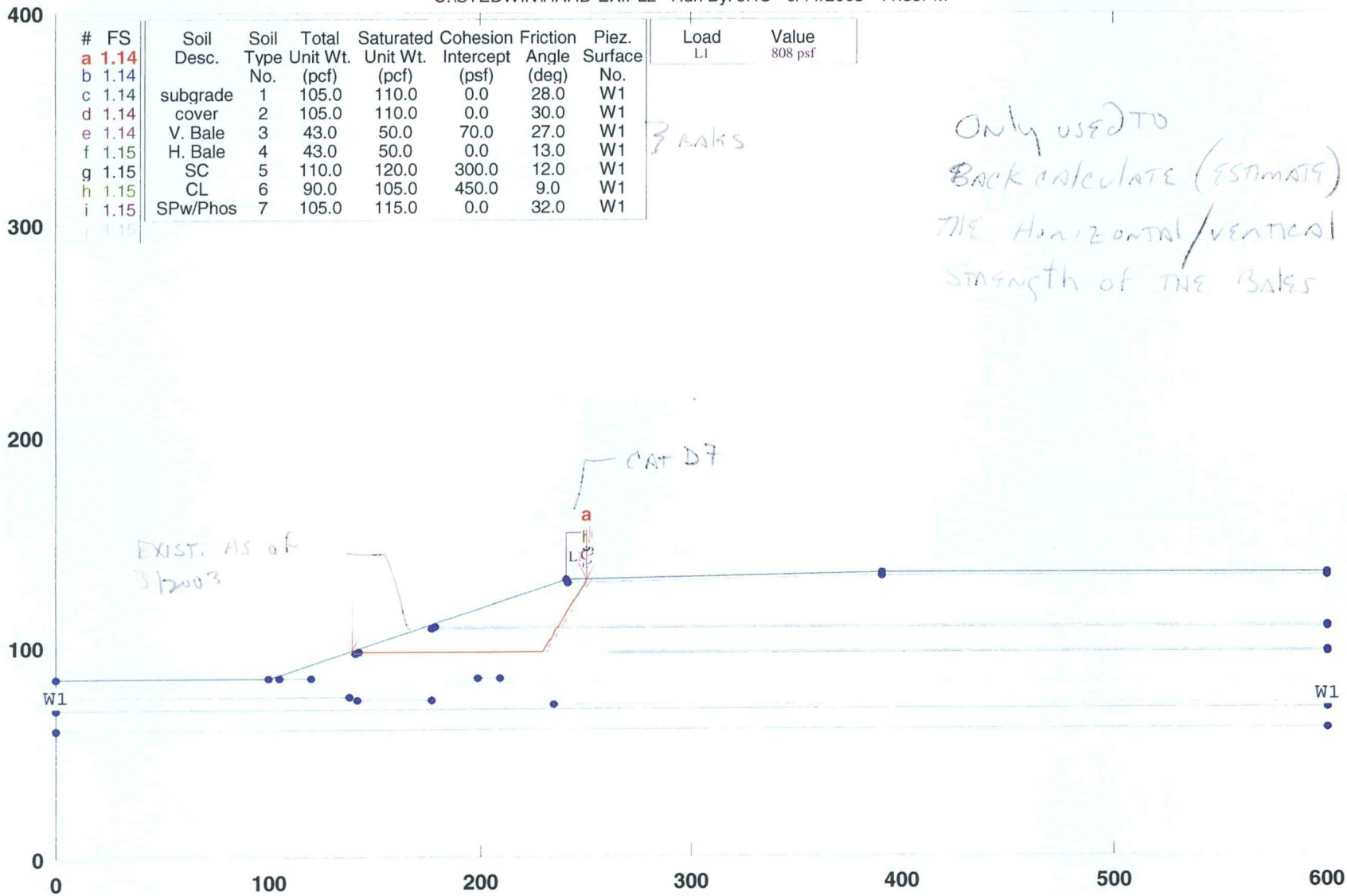
Point No.	X-Surf (ft)	Y-Surf (ft)
1	177.96	110.99
2	179.70	109.99
3	180.49	109.50
4	180.92	109.16
5	236.69	109.36

6	236.80	109.50
7	238.89	112.91
8	240.98	116.32
9	243.07	119.73
10	245.16	123.14
11	247.25	126.55
12	249.34	129.96
13	249.78	130.67
14	250.66	132.19

FACTOR OF SAFETY = 1.04 (used only to estimate the
MINIMUM waste strength
parameters)

Hardee County Landfill - Existing 2003 Hardee County, Florida

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SCS ENGINEERS

PCSTABL5M/si FSmin=1.14
Safety Factors Are Calculated By The Modified Janbu Method

1	105.0	110.0	.0	28.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	43.0	50.0	70.0	27.0	.00	.0	1
4	43.0	50.0	.0	13.0	.00	.0	1
5	110.0	120.0	300.0	12.0	.00	.0	1
6	90.0	105.0	450.0	9.0	.00	.0	1
7	105.0	115.0	.0	32.0	.00	.0	1

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	82.50
2	600.00	82.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	241.00	250.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

The Active And Passive Portions Of The Sliding Surfaces Are Generated According To The Rankine Theory.

1000 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 4.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	140.00	97.25	180.00	97.25	.25
2	210.00	97.25	260.00	97.25	.25

Following Displayed is the Most Critical Of The Trial Failure Surface Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 17 Coordinate Points

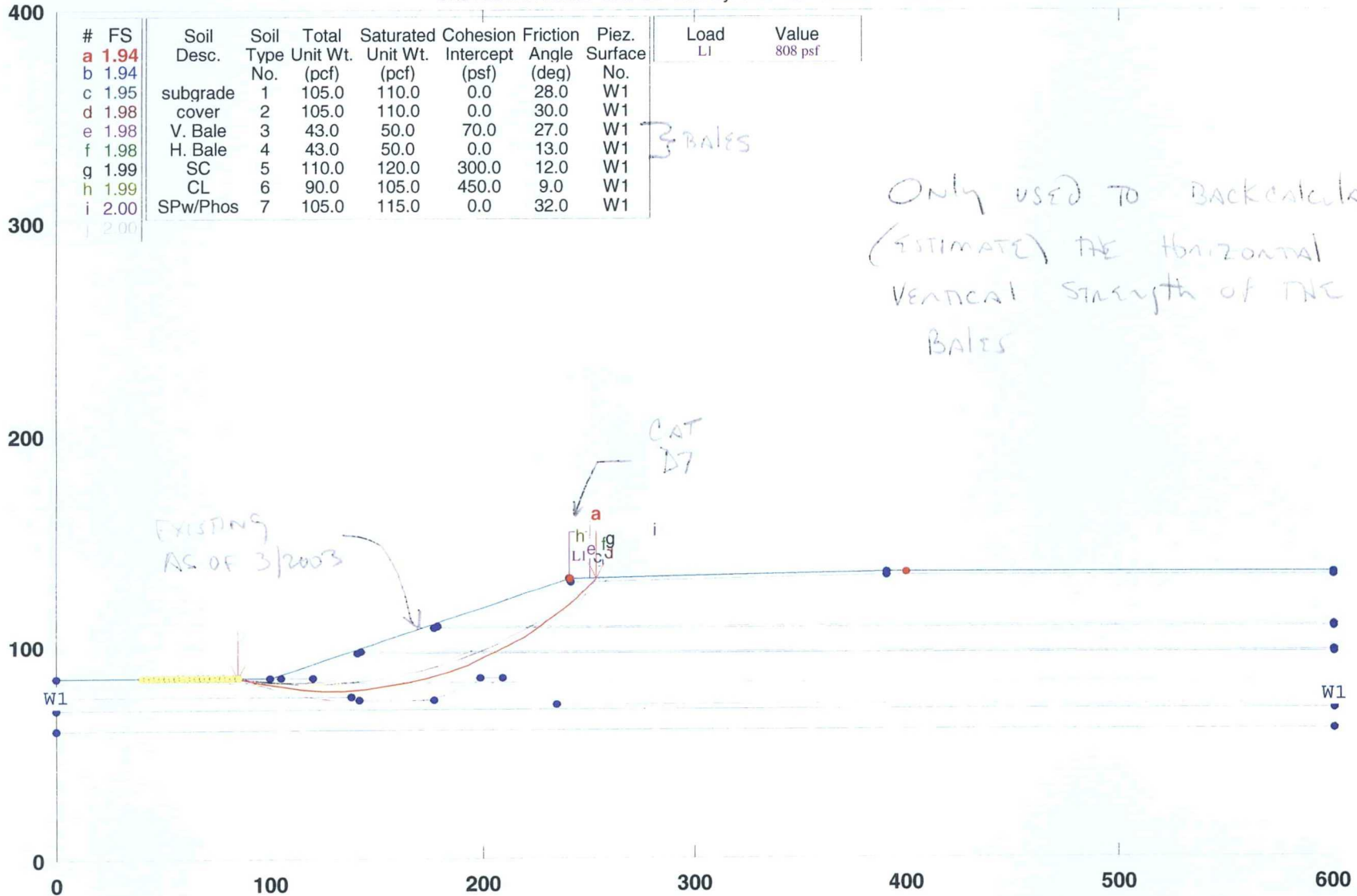
Point No.	X-Surf (ft)	Y-Surf (ft)
-----------	-------------	-------------

1	139.16	98.05
2	140.36	97.36
3	229.37	97.34
4	229.50	97.50
5	231.59	100.91
6	233.68	104.32
7	235.77	107.73
8	236.55	109.00
9	236.94	109.50
10	239.03	112.91
11	241.12	116.32
12	243.21	119.73
13	245.30	123.14
14	247.39	126.55
15	249.48	129.96
16	249.92	130.67
17	250.80	132.20

**FACTOR OF SAFETY = 1.14 (Only used to estimate MINIMUM
waste strength parameters)**

Hardee County Landfill - Existing 2003 Hardee County, Florida

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#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.	Load LI	Value 808 psf
a	1.94									
b	1.94									
c	1.95	subgrade	1	105.0	110.0	0.0	28.0	W1		
d	1.98	cover	2	105.0	110.0	0.0	30.0	W1		
e	1.98	V. Bale	3	43.0	50.0	70.0	27.0	W1		
f	1.98	H. Bale	4	43.0	50.0	0.0	13.0	W1		
g	1.99	SC	5	110.0	120.0	300.0	12.0	W1		
h	1.99	CL	6	90.0	105.0	450.0	9.0	W1		
i	2.00	SPw/Phos	7	105.0	115.0	0.0	32.0	W1		
j	2.00									

Only used to backcalculate (estimate) the horizontal vertical strength of the Bales

SCS ENGINEERS

PCSTABL5M/si FSmin=1.94
Safety Factors Are Calculated By The Modified Bishop Method

1	105.0	110.0	.0	28.0	.00	.0	1
2	105.0	110.0	.0	30.0	.00	.0	1
3	43.0	50.0	70.0	27.0	.00	.0	1
4	43.0	50.0	.0	13.0	.00	.0	1
5	110.0	120.0	300.0	12.0	.00	.0	1
6	90.0	105.0	450.0	9.0	.00	.0	1
7	105.0	115.0	.0	32.0	.00	.0	1

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	82.50
2	600.00	82.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	241.00	250.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 20 Points Equally Spaced Along The Ground Surface Between X = 40.00 ft. and X = 85.00 ft.

Each Surface Terminates Between X = 241.00 ft. and X = 400.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Displayed is the Most Critical Of The Trial Failure Surface Examined.

Safety Factors Are Calculated By The Modified Bishop Method

Failure Surface Specified By 20 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.00	85.00

2	94.72	82.65
3	104.56	80.87
4	114.49	79.67
5	124.47	79.06
6	134.47	79.04
7	144.45	79.60
8	154.39	80.75
9	164.24	82.49
10	173.97	84.79
11	183.55	87.67
12	192.94	91.10
13	202.11	95.08
14	211.04	99.59
15	219.68	104.62
16	228.02	110.14
17	236.01	116.15
18	243.64	122.61
19	250.88	129.52
20	253.42	132.25

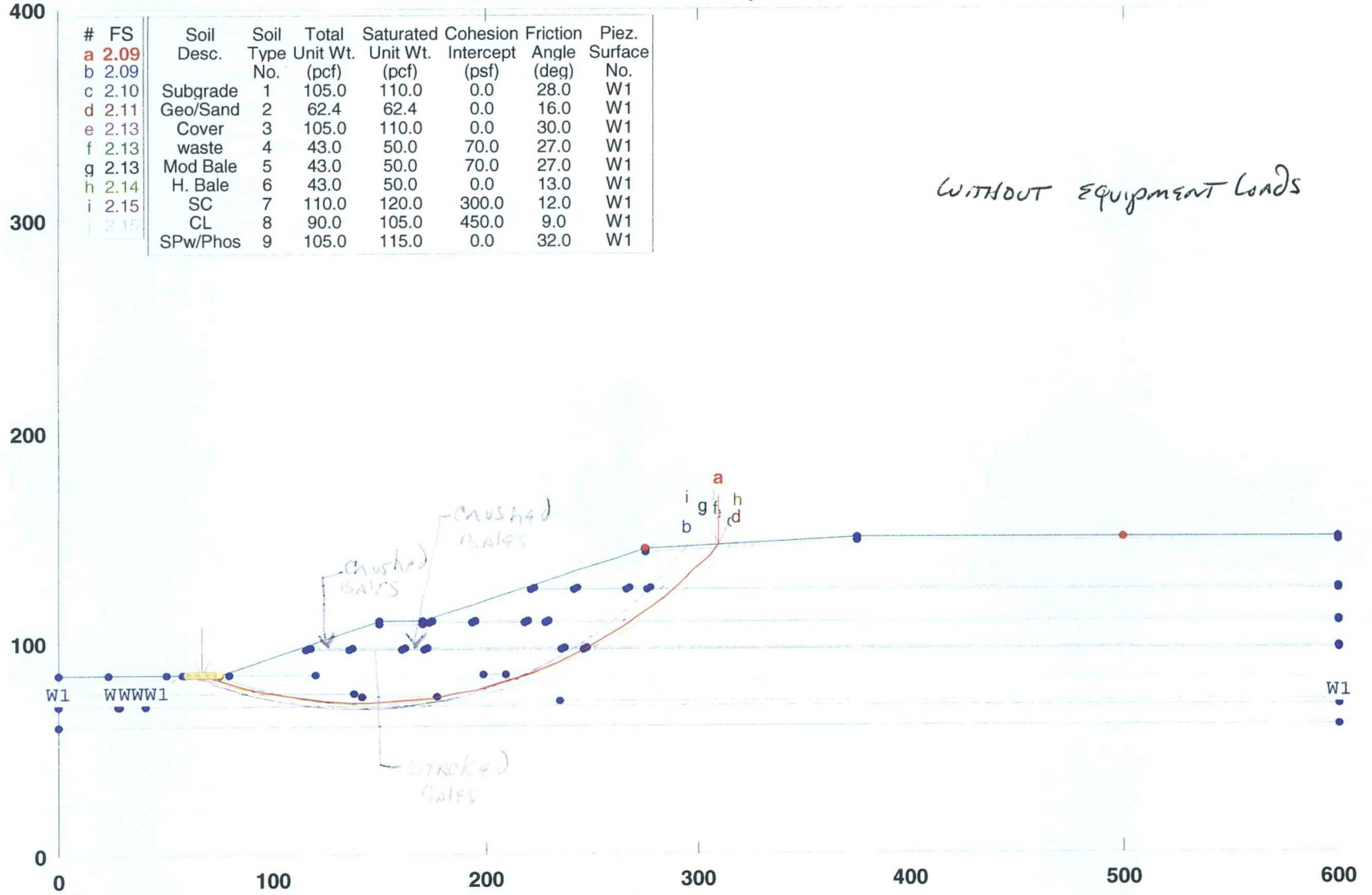
Circle Center At X = 129.9 ; Y = 248.9 and Radius, 169.9

**FACTOR OF SAFETY = 1.94 (Only used to estimate MINIMUM
waste parameters)**

**DEEP ROTATIONAL FAILURE OF THE PROPOSED BALEFILL
WITH 3(H) : 1(V) SIDESLOPES**

Exist Operations - Final - Southside Hardee County, Florida

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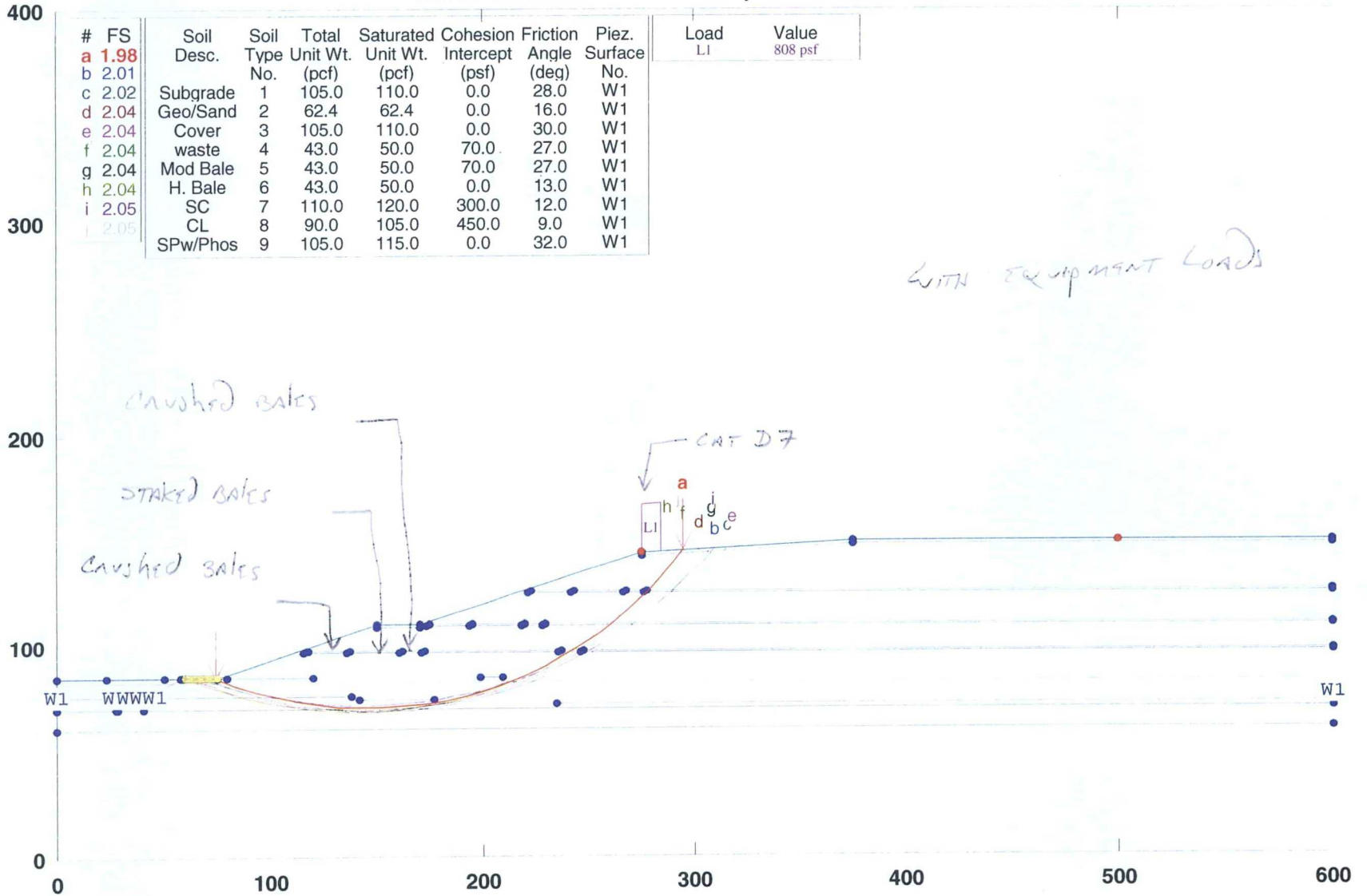
#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
a	2.09							
b	2.09							
c	2.10	Subgrade	1	105.0	110.0	0.0	28.0	W1
d	2.11	Geo/Sand	2	62.4	62.4	0.0	16.0	W1
e	2.13	Cover	3	105.0	110.0	0.0	30.0	W1
f	2.13	waste	4	43.0	50.0	70.0	27.0	W1
g	2.13	Mod Bale	5	43.0	50.0	70.0	27.0	W1
h	2.14	H. Bale	6	43.0	50.0	0.0	13.0	W1
i	2.15	SC	7	110.0	120.0	300.0	12.0	W1
j	2.15	CL	8	90.0	105.0	450.0	9.0	W1
		SPw/Phos	9	105.0	115.0	0.0	32.0	W1

SCS ENGINEERS

PCSTABL5M/si FSmin=2.09
 Safety Factors Are Calculated By The Modified Bishop Method

Exist Operations - Final - Southside Hardee County, Florida

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WITH EQUIPMENT LOADS

SCS ENGINEERS

PCSTABL5M/si FSmin=1.98
Safety Factors Are Calculated By The Modified Bishop Method

** PCSTABL5M **
by
Purdue University

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 9/11/2003
Time of Run: 10:39PM
Run By: JHO
Input Data Filename: C:ops-fin.
Output Filename: C:ops-fin.OUT
Unit: ENGLISH
Plotted Output Filename: C:ops-fin.PLT

PROBLEM DESCRIPTION Exist Operations - Final - Southside
Hardee County, Florida

BOUNDARY COORDINATES

10 Top Boundaries
80 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	23.00	85.00	1
2	23.00	85.00	50.00	85.00	1
3	50.00	85.00	58.00	85.00	1
4	58.00	85.00	58.56	85.00	2
5	58.56	85.00	75.00	85.00	1
6	75.00	85.00	150.00	110.00	3
7	150.00	110.00	170.00	110.00	3
8	170.00	110.00	275.00	145.00	3
9	275.00	145.00	375.00	150.00	3
10	375.00	150.00	600.00	150.00	3
11	.00	76.00	40.00	76.00	7
12	40.00	76.00	58.00	85.00	7
13	40.00	76.00	40.56	76.00	2
14	40.56	76.00	58.56	85.00	1
15	75.00	85.00	79.74	85.00	1
16	79.74	85.00	115.74	97.00	4
17	117.24	97.50	150.24	108.50	5
18	150.24	108.50	170.24	108.50	4
19	170.24	108.50	173.24	109.50	4
20	173.24	109.50	174.74	110.00	5
21	174.74	110.00	221.24	125.50	4
22	221.24	125.50	222.74	126.00	5
23	222.74	126.00	275.28	143.51	4
24	275.28	143.51	375.00	148.50	4
25	375.00	148.50	600.00	148.50	4
26	222.74	126.00	242.74	126.00	5
27	242.74	126.00	267.74	126.00	6
28	267.74	126.00	277.74	126.00	5
29	277.74	126.00	600.00	126.00	6
30	221.24	125.50	241.24	125.50	4
31	241.24	125.50	242.74	126.00	6
32	241.24	125.50	266.24	125.50	4
33	266.24	125.50	267.74	126.00	5
34	266.24	125.50	276.24	125.50	4

35	276.24	125.50	277.74	126.00	6
36	277.74	125.50	600.00	125.50	4
37	174.74	110.00	194.74	110.00	5
38	194.74	110.00	219.74	110.00	6
39	219.74	110.00	229.74	110.00	5
40	229.74	110.00	600.00	110.00	6
41	193.24	109.50	194.74	110.00	6
42	173.24	109.50	193.24	109.50	4
43	218.24	109.50	219.74	110.00	5
44	193.24	109.50	218.24	109.50	4
45	218.24	109.50	228.24	109.50	4
46	228.24	109.50	229.74	110.00	6
47	228.24	109.50	600.00	109.50	4
48	117.24	97.50	137.24	97.50	5
49	115.74	97.00	117.74	97.50	5
50	137.24	97.50	162.24	97.50	6
51	162.24	97.50	172.24	97.50	5
52	172.24	97.50	237.24	97.50	6
53	237.24	97.50	247.24	97.50	6
54	247.24	97.50	600.00	97.50	6
55	115.74	97.00	135.74	97.00	4
56	135.74	97.00	137.24	97.50	6
57	135.74	97.00	160.74	97.00	4
58	160.74	97.00	162.24	97.50	5
59	160.74	97.00	170.74	97.00	4
60	170.74	97.00	172.24	97.50	6
61	170.74	97.00	235.74	97.00	4
62	235.74	97.00	237.24	97.50	6
63	235.74	97.00	245.74	97.00	4
64	245.74	97.00	247.24	97.50	6
65	245.74	97.00	600.00	97.00	4
66	79.74	85.00	120.00	85.00	1
67	120.00	85.00	138.00	76.00	1
68	40.56	76.00	138.00	76.00	7
69	138.00	76.00	142.00	74.00	7
70	142.00	74.00	177.00	74.00	7
71	177.00	74.00	199.00	85.00	7
72	199.00	85.00	209.00	85.00	7
73	209.00	85.00	235.00	72.00	7
74	235.00	72.00	600.00	72.00	7
75	.00	70.00	28.00	70.00	8
76	28.00	70.00	40.00	76.00	2
77	28.00	70.00	28.56	70.00	8
78	28.56	70.00	40.56	70.00	7
79	28.56	70.00	600.00	70.00	8
80	.00	60.00	600.00	60.00	9

ISOTROPIC SOIL PARAMETERS

9 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	105.0	110.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	16.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	43.0	50.0	70.0	27.0	.00	.0	1
5	43.0	50.0	70.0	27.0	.00	.0	1
6	43.0	50.0	.0	13.0	.00	.0	1
7	110.0	120.0	300.0	12.0	.00	.0	1

8	90.0	105.0	450.0	9.0	.00	.0	1
9	105.0	115.0	.0	32.0	.00	.0	1

PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 6 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	82.50
2	26.95	82.50
3	34.04	82.50
4	39.74	82.50
5	45.41	82.50
6	600.00	82.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	275.00	284.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, has Been Specified.

1000 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 20 Points Equally Spaced Along The Ground Surface Between X = 60.00 ft.
and X = 75.00 ft.

Each Surface Terminates Between X = 275.00 ft.
and X = 500.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Displayed is the Most Critical Of The Trial Failure Surface Examined.

Safety Factors Are Calculated By The Modified Bishop Method

Failure Surface Specified By 28 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	67.11	85.00
2	76.57	81.78
3	86.17	78.98
4	95.89	76.62
5	105.71	74.70
6	115.60	73.23

7	125.54	72.20
8	135.53	71.62
9	145.53	71.49
10	155.52	71.81
11	165.49	72.58
12	175.42	73.79
13	185.28	75.45
14	195.05	77.56
15	204.72	80.10
16	214.27	83.08
17	223.68	86.48
18	232.92	90.30
19	241.98	94.53
20	250.84	99.17
21	259.48	104.20
22	267.89	109.61
23	276.04	115.40
24	283.93	121.55
25	291.53	128.04
26	298.83	134.88
27	305.82	142.03
28	310.03	146.75

Circle Center At X = 143.4 ; Y = 293.5 and Radius, 222.0

FACTOR OF SAFETY = 2.09 (without equipment loads)

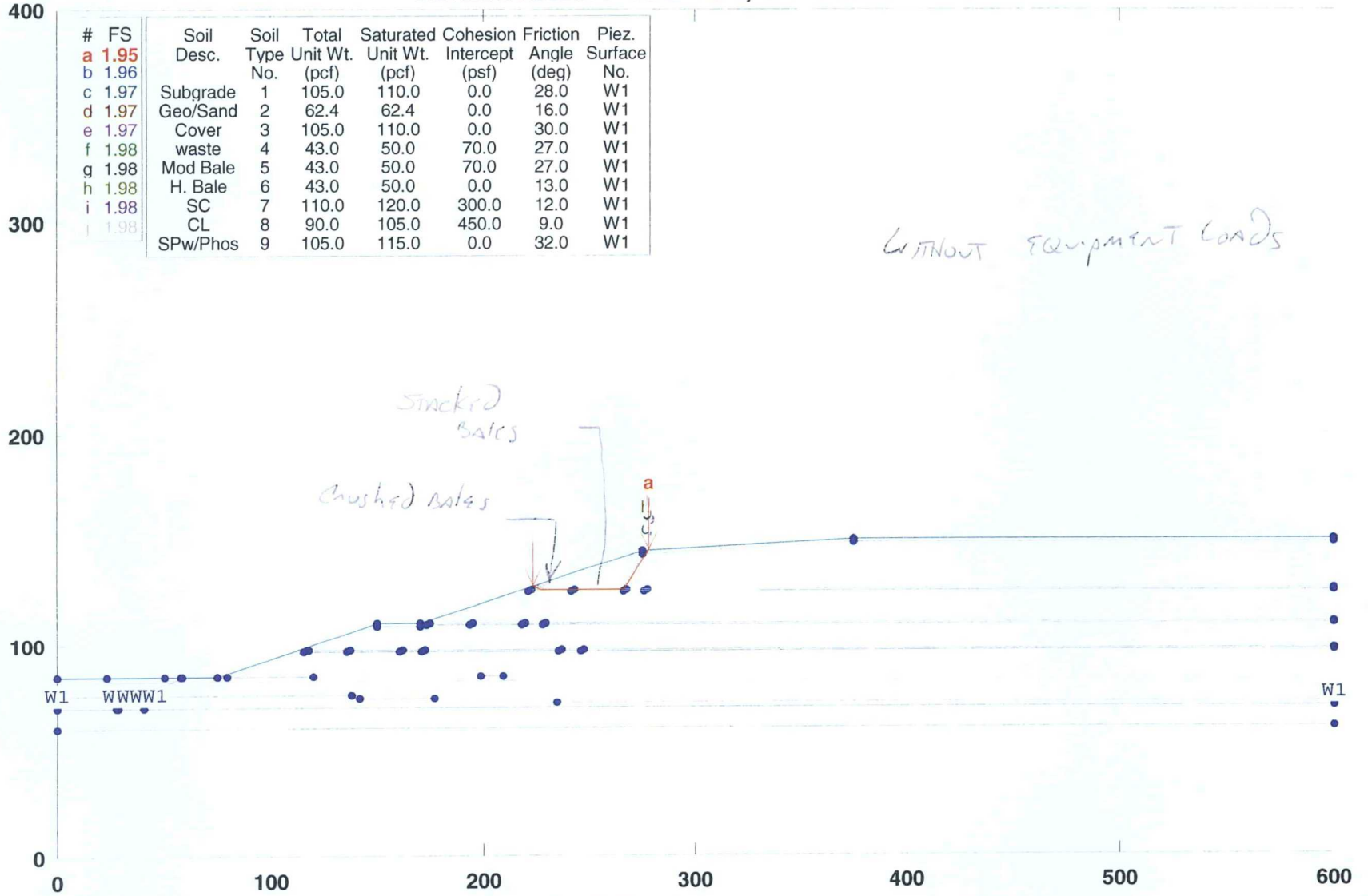
FACTOR OF SAFETY = 1.98 (with equipment loads)

**WEDGE (BLOCK) FAILURE OF THE PROPOSED BALEFILL
WITH 3(H) : 1(V) SIDESLOPES**

UPPER THIRD OF WASTE MOUND

Exist Operations - Final - Southside Hardee County, Florida

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WITHOUT EQUIPMENT LOADS

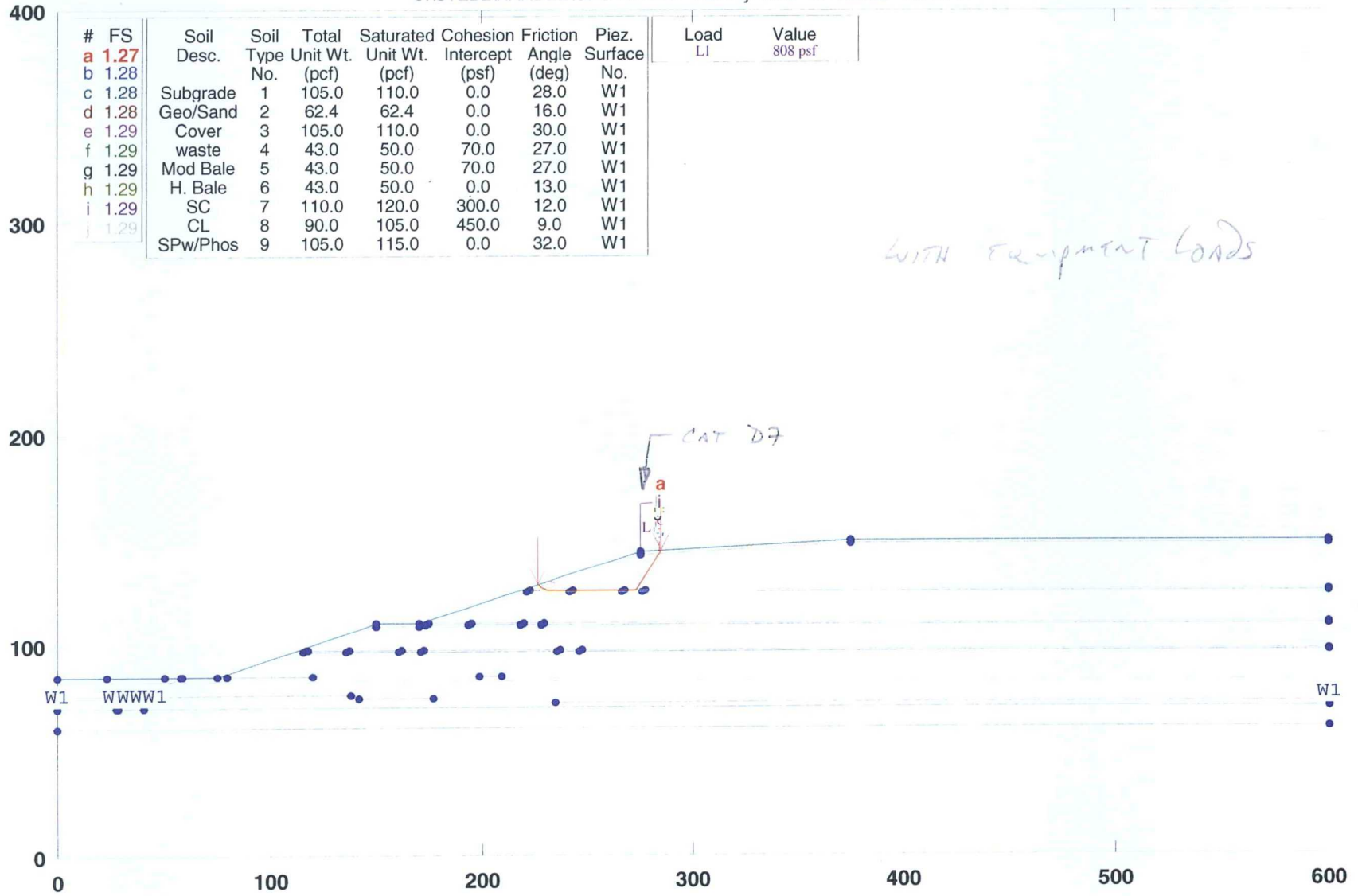
Stacked Bales
Crushed Bales

SCS ENGINEERS

PCSTABL5M/si FSmin=1.95
Safety Factors Are Calculated By The Modified Janbu Method

Exist Operations - Final - Southside Hardee County, Florida

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#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.	Load LI	Value 808 psf
a	1.27									
b	1.28									
c	1.28	Subgrade	1	105.0	110.0	0.0	28.0	W1		
d	1.28	Geo/Sand	2	62.4	62.4	0.0	16.0	W1		
e	1.29	Cover	3	105.0	110.0	0.0	30.0	W1		
f	1.29	waste	4	43.0	50.0	70.0	27.0	W1		
g	1.29	Mod Bale	5	43.0	50.0	70.0	27.0	W1		
h	1.29	H. Bale	6	43.0	50.0	0.0	13.0	W1		
i	1.29	SC	7	110.0	120.0	300.0	12.0	W1		
j	1.29	CL	8	90.0	105.0	450.0	9.0	W1		
		SPw/Phos	9	105.0	115.0	0.0	32.0	W1		

WITH EQUIPMENT LOADS

CAT D7

SCS ENGINEERS

PCSTABL5M/si FSmin=1.27
Safety Factors Are Calculated By The Modified Janbu Method

** PCSTABL5M **
 by
 Purdue University

--Slope Stability Analysis--
 Simplified Janbu, Simplified Bishop
 or Spencer`s Method of Slices

Run Date: 9/11/2003
 Time of Run: 10:13PM
 Run By: JHO
 Input Data Filename: C:ops-fin.
 Output Filename: C:ops-fin.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:ops-fin.PLT

PROBLEM DESCRIPTION **Exist Operations - Final - Southside
 Hardee County, Florida**

BOUNDARY COORDINATES

10 Top Boundaries
 80 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	23.00	85.00	1
2	23.00	85.00	50.00	85.00	1
3	50.00	85.00	58.00	85.00	1
4	58.00	85.00	58.56	85.00	2
5	58.56	85.00	75.00	85.00	1
6	75.00	85.00	150.00	110.00	3
7	150.00	110.00	170.00	110.00	3
8	170.00	110.00	275.00	145.00	3
9	275.00	145.00	375.00	150.00	3
10	375.00	150.00	600.00	150.00	3
11	.00	76.00	40.00	76.00	7
12	40.00	76.00	58.00	85.00	7
13	40.00	76.00	40.56	76.00	2
14	40.56	76.00	58.56	85.00	1
15	75.00	85.00	79.74	85.00	1
16	79.74	85.00	115.74	97.00	4
17	117.24	97.50	150.24	108.50	5
18	150.24	108.50	170.24	108.50	4
19	170.24	108.50	173.24	109.50	4
20	173.24	109.50	174.74	110.00	5
21	174.74	110.00	221.24	125.50	4
22	221.24	125.50	222.74	126.00	5
23	222.74	126.00	275.28	143.51	4
24	275.28	143.51	375.00	148.50	4
25	375.00	148.50	600.00	148.50	4
26	222.74	126.00	242.74	126.00	5
27	242.74	126.00	267.74	126.00	6
28	267.74	126.00	277.74	126.00	5
29	277.74	126.00	600.00	126.00	6
30	221.24	125.50	241.24	125.50	4
31	241.24	125.50	242.74	126.00	6
32	241.24	125.50	266.24	125.50	4
33	266.24	125.50	267.74	126.00	5
34	266.24	125.50	276.24	125.50	4
35	276.24	125.50	277.74	126.00	6

36	277.74	125.50	600.00	125.50	4
37	174.74	110.00	194.74	110.00	5
38	194.74	110.00	219.74	110.00	6
39	219.74	110.00	229.74	110.00	5
40	229.74	110.00	600.00	110.00	6
41	193.24	109.50	194.74	110.00	6
42	173.24	109.50	193.24	109.50	4
43	218.24	109.50	219.74	110.00	5
44	193.24	109.50	218.24	109.50	4
45	218.24	109.50	228.24	109.50	4
46	228.24	109.50	229.74	110.00	6
47	228.24	109.50	600.00	109.50	4
48	117.24	97.50	137.24	97.50	5
49	115.74	97.00	117.74	97.50	5
50	137.24	97.50	162.24	97.50	6
51	162.24	97.50	172.24	97.50	5
52	172.24	97.50	237.24	97.50	6
53	237.24	97.50	247.24	97.50	6
54	247.24	97.50	600.00	97.50	6
55	115.74	97.00	135.74	97.00	4
56	135.74	97.00	137.24	97.50	6
57	135.74	97.00	160.74	97.00	4
58	160.74	97.00	162.24	97.50	5
59	160.74	97.00	170.74	97.00	4
60	170.74	97.00	172.24	97.50	6
61	170.74	97.00	235.74	97.00	4
62	235.74	97.00	237.24	97.50	6
63	235.74	97.00	245.74	97.00	4
64	245.74	97.00	247.24	97.50	6
65	245.74	97.00	600.00	97.00	4
66	79.74	85.00	120.00	85.00	1
67	120.00	85.00	138.00	76.00	1
68	40.56	76.00	138.00	76.00	7
69	138.00	76.00	142.00	74.00	7
70	142.00	74.00	177.00	74.00	7
71	177.00	74.00	199.00	85.00	7
72	199.00	85.00	209.00	85.00	7
73	209.00	85.00	235.00	72.00	7
74	235.00	72.00	600.00	72.00	7
75	.00	70.00	28.00	70.00	8
76	28.00	70.00	40.00	76.00	2
77	28.00	70.00	28.56	70.00	8
78	28.56	70.00	40.56	70.00	7
79	28.56	70.00	600.00	70.00	8
80	.00	60.00	600.00	60.00	9

ISOTROPIC SOIL PARAMETERS

9 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	105.0	110.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	16.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	43.0	50.0	70.0	27.0	.00	.0	1
5	43.0	50.0	70.0	27.0	.00	.0	1
6	43.0	50.0	.0	13.0	.00	.0	1
7	110.0	120.0	300.0	12.0	.00	.0	1
8	90.0	105.0	450.0	9.0	.00	.0	1

3	231.34	126.00
4	231.88	125.67
5	272.89	125.86
6	272.97	126.00
7	278.20	134.53
8	283.42	143.05
9	283.97	143.94
10	284.86	145.49

FACTOR OF SAFETY = 1.27 (with equipment loads)

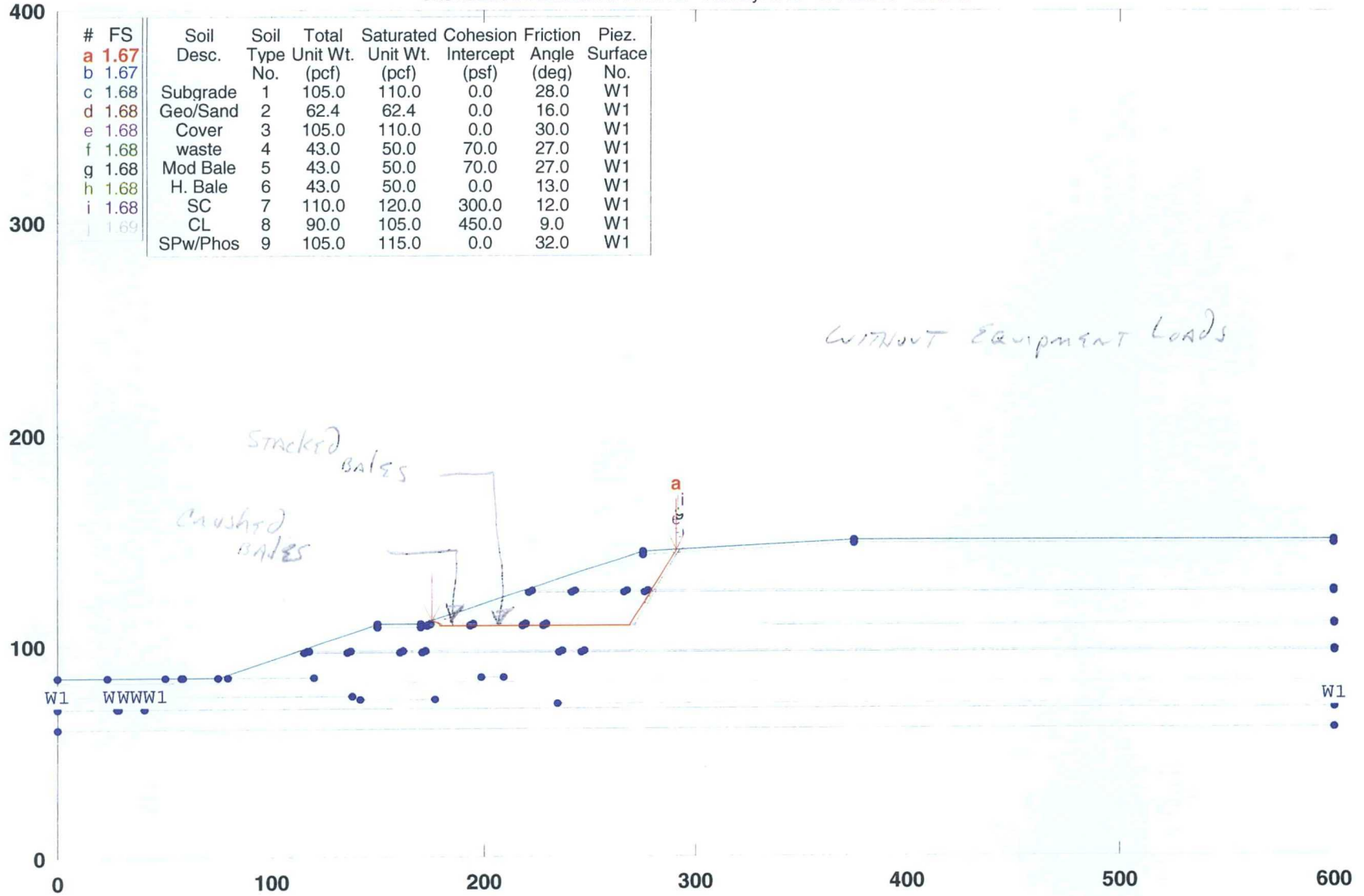
FACTOR OF SAFETY = 1.95 (without equipment loads)

**WEDGE (BLOCK) FAILURE OF THE PROPOSED BALEFILL
WITH 3(H) : 1(V) SIDESLOPES**

MIDDLE OF WASTE MOUND

Exist Operations - Final - Southside Hardee County, Florida

C:\STED2\HARDEE\OPS-FIN.PL2 Run By: JHO 9/11/2003 9:40PM



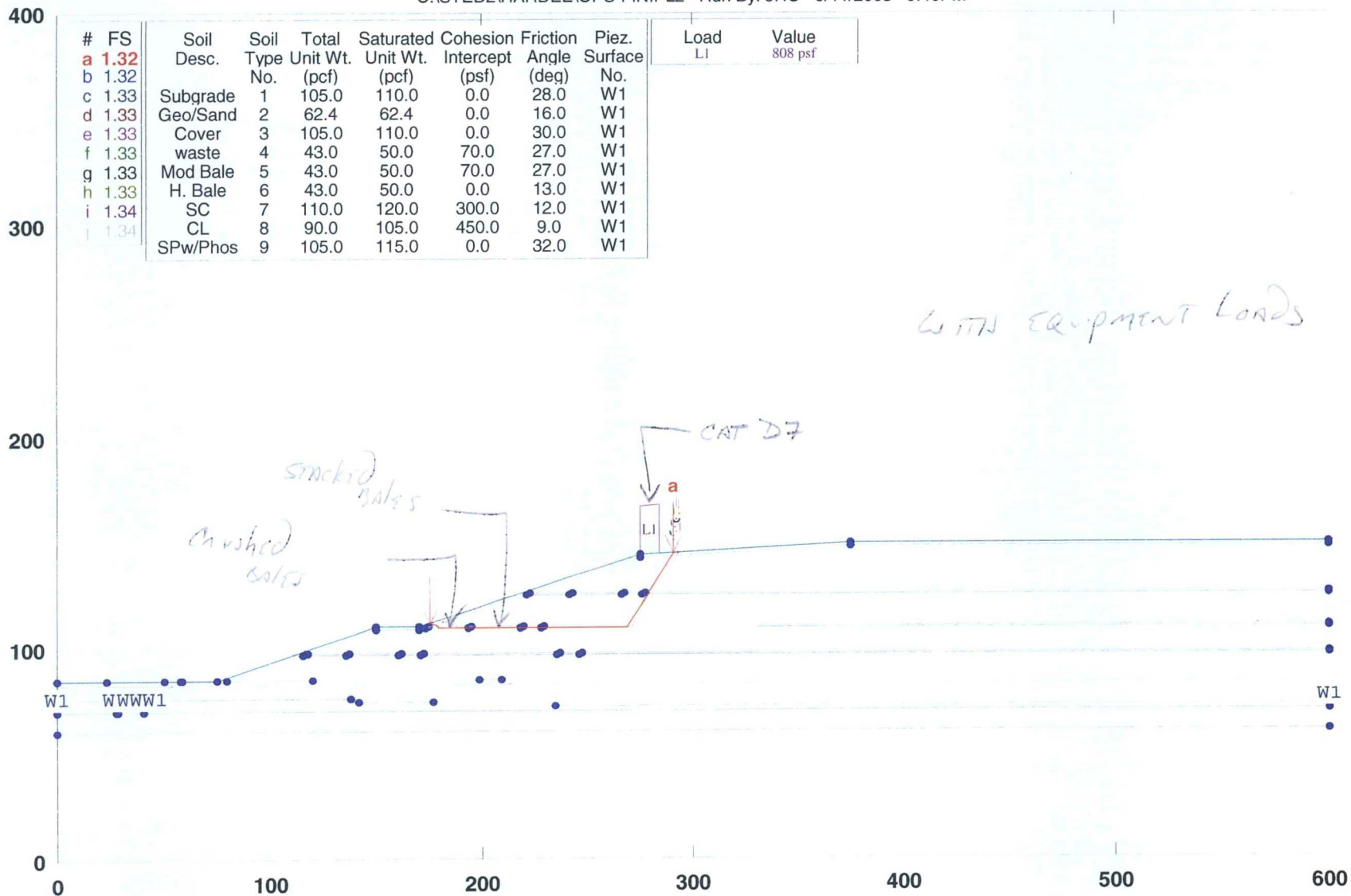
#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
a	1.67							
b	1.67							
c	1.68	Subgrade	1	105.0	110.0	0.0	28.0	W1
d	1.68	Geo/Sand	2	62.4	62.4	0.0	16.0	W1
e	1.68	Cover	3	105.0	110.0	0.0	30.0	W1
f	1.68	waste	4	43.0	50.0	70.0	27.0	W1
g	1.68	Mod Bale	5	43.0	50.0	70.0	27.0	W1
h	1.68	H. Bale	6	43.0	50.0	0.0	13.0	W1
i	1.68	SC	7	110.0	120.0	300.0	12.0	W1
j	1.69	CL	8	90.0	105.0	450.0	9.0	W1
		SPw/Phos	9	105.0	115.0	0.0	32.0	W1

SCS ENGINEERS

PCSTABL5M/si FSmin=1.67
Safety Factors Are Calculated By The Modified Janbu Method

Exist Operations - Final - Southside Hardee County, Florida

C:\STED2\HARDEE\OPS-FIN.PL2 Run By: JHO 9/11/2003 9:40PM



SCS ENGINEERS

PCSTABL5M/si FSmin=1.32
 Safety Factors Are Calculated By The Modified Janbu Method

**** PCSTABL5M ****
 by
 Purdue University
 --Slope Stability Analysis--
 Simplified Janbu, Simplified Bishop
 or Spencer`s Method of Slices

Run Date: 9/11/2003
 Time of Run: 9:41PM
 Run By: JHO
 Input Data Filename: C:ops-fin.
 Output Filename: C:ops-fin.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:ops-fin.PLT

**PROBLEM DESCRIPTION Exist Operations - Final - Southside
 Hardee County, Florida**

BOUNDARY COORDINATES

10 Top Boundaries
 80 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	23.00	85.00	1
2	23.00	85.00	50.00	85.00	1
3	50.00	85.00	58.00	85.00	1
4	58.00	85.00	58.56	85.00	2
5	58.56	85.00	75.00	85.00	1
6	75.00	85.00	150.00	110.00	3
7	150.00	110.00	170.00	110.00	3
8	170.00	110.00	275.00	145.00	3
9	275.00	145.00	375.00	150.00	3
10	375.00	150.00	600.00	150.00	3
11	.00	76.00	40.00	76.00	7
12	40.00	76.00	58.00	85.00	7
13	40.00	76.00	40.56	76.00	2
14	40.56	76.00	58.56	85.00	1
15	75.00	85.00	79.74	85.00	1
16	79.74	85.00	115.74	97.00	4
17	117.24	97.50	150.24	108.50	5
18	150.24	108.50	170.24	108.50	4
19	170.24	108.50	173.24	109.50	4
20	173.24	109.50	174.74	110.00	5
21	174.74	110.00	221.24	125.50	4
22	221.24	125.50	222.74	126.00	5
23	222.74	126.00	275.28	143.51	4
24	275.28	143.51	375.00	148.50	4
25	375.00	148.50	600.00	148.50	4
26	222.74	126.00	242.74	126.00	5
27	242.74	126.00	267.74	126.00	6
28	267.74	126.00	277.74	126.00	5
29	277.74	126.00	600.00	126.00	6
30	221.24	125.50	241.24	125.50	4
31	241.24	125.50	242.74	126.00	6
32	241.24	125.50	266.24	125.50	4
33	266.24	125.50	267.74	126.00	5
34	266.24	125.50	276.24	125.50	4
35	276.24	125.50	277.74	126.00	6
36	277.74	125.50	600.00	125.50	4

37	174.74	110.00	194.74	110.00	5
38	194.74	110.00	219.74	110.00	6
39	219.74	110.00	229.74	110.00	5
40	229.74	110.00	600.00	110.00	6
41	193.24	109.50	194.74	110.00	6
42	173.24	109.50	193.24	109.50	4
43	218.24	109.50	219.74	110.00	5
44	193.24	109.50	218.24	109.50	4
45	218.24	109.50	228.24	109.50	4
46	228.24	109.50	229.74	110.00	6
47	228.24	109.50	600.00	109.50	4
48	117.24	97.50	137.24	97.50	5
49	115.74	97.00	117.74	97.50	5
50	137.24	97.50	162.24	97.50	6
51	162.24	97.50	172.24	97.50	5
52	172.24	97.50	237.24	97.50	6
53	237.24	97.50	247.24	97.50	6
54	247.24	97.50	600.00	97.50	6
55	115.74	97.00	135.74	97.00	4
56	135.74	97.00	137.24	97.50	6
57	135.74	97.00	160.74	97.00	4
58	160.74	97.00	162.24	97.50	5
59	160.74	97.00	170.74	97.00	4
60	170.74	97.00	172.24	97.50	6
61	170.74	97.00	235.74	97.00	4
62	235.74	97.00	237.24	97.50	6
63	235.74	97.00	245.74	97.00	4
64	245.74	97.00	247.24	97.50	6
65	245.74	97.00	600.00	97.00	4
66	79.74	85.00	120.00	85.00	1
67	120.00	85.00	138.00	76.00	1
68	40.56	76.00	138.00	76.00	7
69	138.00	76.00	142.00	74.00	7
70	142.00	74.00	177.00	74.00	7
71	177.00	74.00	199.00	85.00	7
72	199.00	85.00	209.00	85.00	7
73	209.00	85.00	235.00	72.00	7
74	235.00	72.00	600.00	72.00	7
75	.00	70.00	28.00	70.00	8
76	28.00	70.00	40.00	76.00	2
77	28.00	70.00	28.56	70.00	8
78	28.56	70.00	40.56	70.00	7
79	28.56	70.00	600.00	70.00	8
80	.00	60.00	600.00	60.00	9

ISOTROPIC SOIL PARAMETERS

9 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	105.0	110.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	16.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	43.0	50.0	70.0	27.0	.00	.0	1
5	43.0	50.0	70.0	27.0	.00	.0	1
6	43.0	50.0	.0	13.0	.00	.0	1
7	110.0	120.0	300.0	12.0	.00	.0	1
8	90.0	105.0	450.0	9.0	.00	.0	1
9	105.0	115.0	.0	32.0	.00	.0	1

PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 6 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	82.50
2	26.95	82.50
3	34.04	82.50
4	39.74	82.50
5	45.41	82.50
6	600.00	82.50

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	275.00	284.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

The Active And Passive Portions Of The Sliding Surfaces Are Generated According To The Rankine Theory.

500 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	175.00	109.75	202.50	109.75	.25
2	246.50	109.75	330.00	109.75	.25

Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 13 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	175.81	111.94
2	177.55	110.94
3	179.07	110.00
4	179.57	109.69
5	269.14	109.84
6	269.27	110.00

7	274.49	118.53
8	278.77	125.50
9	279.16	126.00
10	284.39	134.53
11	289.61	143.05
12	290.36	144.26
13	291.25	145.81

FACTOR OF SAFETY = 1.32 (with equipment loads)

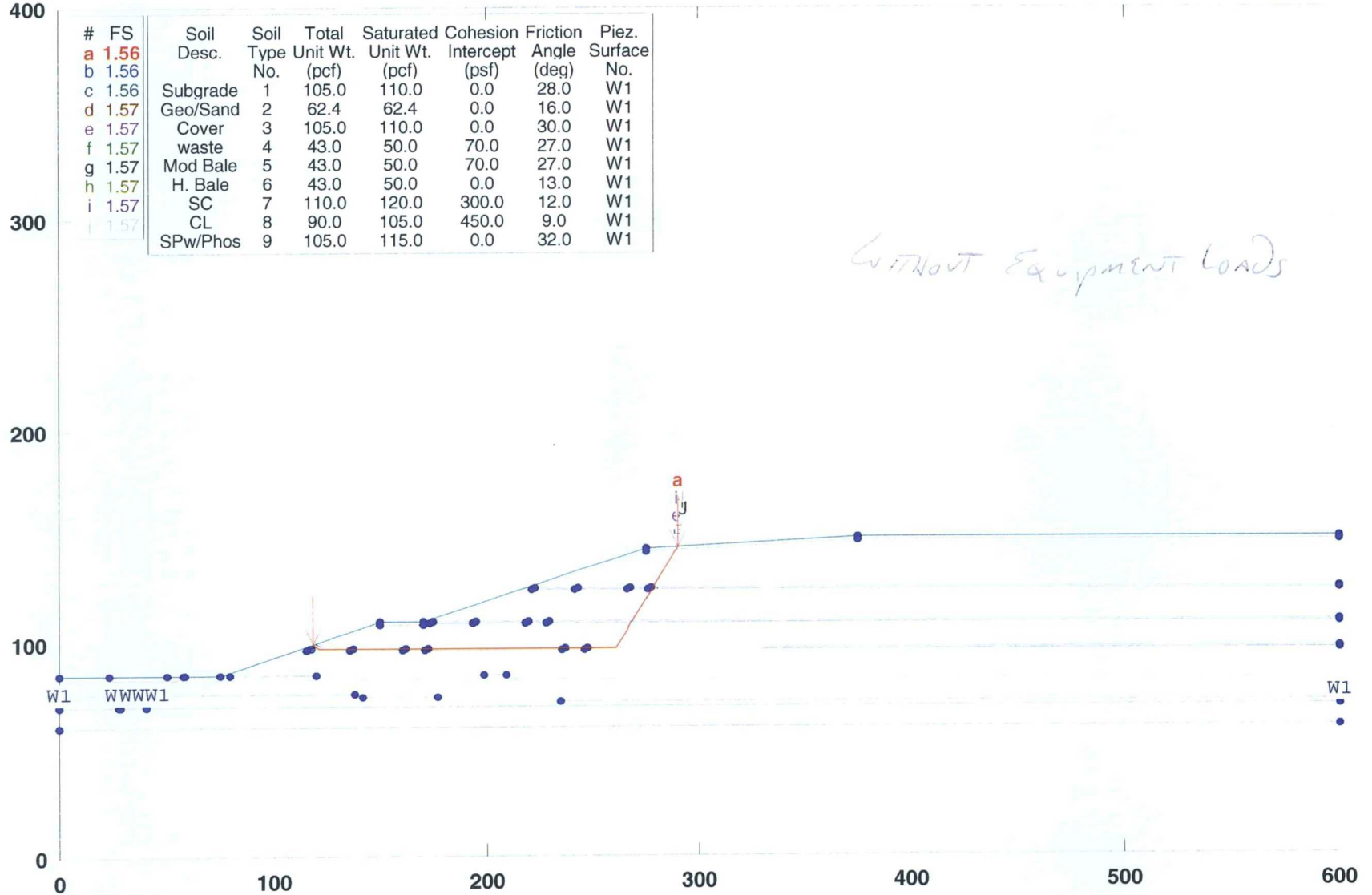
FACTOR OF SAFETY = 1.67 (without equipment loads)

**WEDGE (BLOCK) FAILURE OF THE PROPOSED BALEFILL
WITH 3(H) : 1(V) SIDESLOPES**

LOWER THIRD OF WASTE MOUND

Exist Operations - Final - Southside Hardee County, Florida

C:\STED2\HARDEE\OPS-FIN.PL2 Run By: JHO 9/11/2003 9:35PM



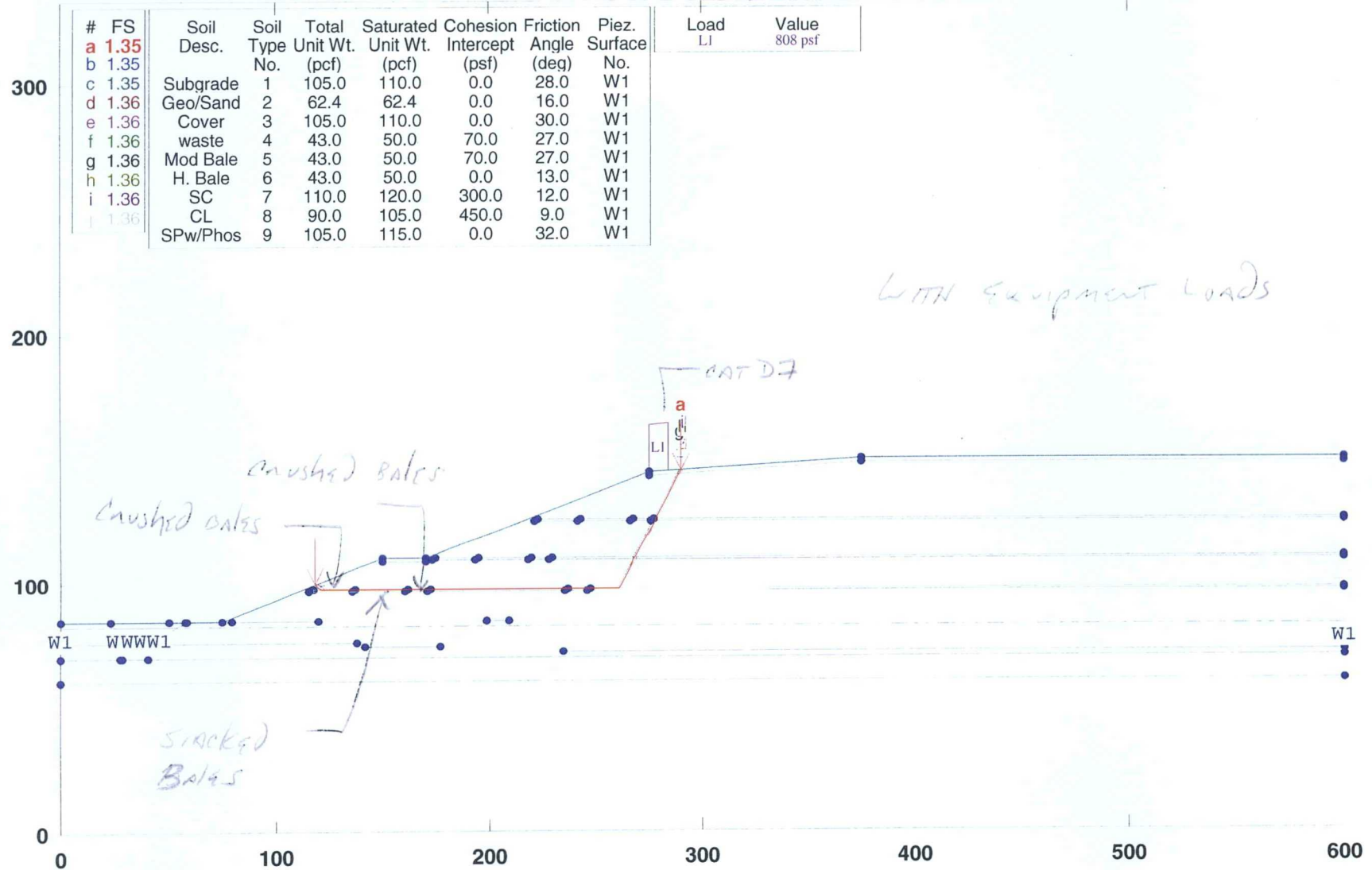
#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
a	1.56							
b	1.56							
c	1.56	Subgrade	1	105.0	110.0	0.0	28.0	W1
d	1.57	Geo/Sand	2	62.4	62.4	0.0	16.0	W1
e	1.57	Cover	3	105.0	110.0	0.0	30.0	W1
f	1.57	waste	4	43.0	50.0	70.0	27.0	W1
g	1.57	Mod Bale	5	43.0	50.0	70.0	27.0	W1
h	1.57	H. Bale	6	43.0	50.0	0.0	13.0	W1
i	1.57	SC	7	110.0	120.0	300.0	12.0	W1
j	1.57	CL	8	90.0	105.0	450.0	9.0	W1
k	1.57	SPw/Phos	9	105.0	115.0	0.0	32.0	W1

SCS ENGINEERS

PCSTABL5M/si FSmin=1.56
Safety Factors Are Calculated By The Modified Janbu Method

Exist Operations - Final - Southside Hardee County, Florida

C:\STED2\HARDEE\OPS-FIN.PL2 Run By: JHO 9/10/2003 1:54PM



SCS ENGINEERS

PCSTABL5M/si FSmin=1.35
Safety Factors Are Calculated By The Modified Janbu Method

** PCSTABL5M **
 by
 Purdue University

--Slope Stability Analysis--
 Simplified Janbu, Simplified Bishop
 or Spencer`s Method of Slices

Run Date: 9/11/2003
 Time of Run: 9:58PM
 Run By: JHO
 Input Data Filename: C:ops-fin.
 Output Filename: C:ops-fin.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:ops-fin.PLT

**PROBLEM DESCRIPTION Exist Operations - Final - Southside
 Hardee County, Florida**

BOUNDARY COORDINATES

10 Top Boundaries
 80 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	23.00	85.00	1
2	23.00	85.00	50.00	85.00	1
3	50.00	85.00	58.00	85.00	1
4	58.00	85.00	58.56	85.00	2
5	58.56	85.00	75.00	85.00	1
6	75.00	85.00	150.00	110.00	3
7	150.00	110.00	170.00	110.00	3
8	170.00	110.00	275.00	145.00	3
9	275.00	145.00	375.00	150.00	3
10	375.00	150.00	600.00	150.00	3
11	.00	76.00	40.00	76.00	7
12	40.00	76.00	58.00	85.00	7
13	40.00	76.00	40.56	76.00	2
14	40.56	76.00	58.56	85.00	1
15	75.00	85.00	79.74	85.00	1
16	79.74	85.00	115.74	97.00	4
17	117.24	97.50	150.24	108.50	5
18	150.24	108.50	170.24	108.50	4
19	170.24	108.50	173.24	109.50	4
20	173.24	109.50	174.74	110.00	5
21	174.74	110.00	221.24	125.50	4
22	221.24	125.50	222.74	126.00	5
23	222.74	126.00	275.28	143.51	4
24	275.28	143.51	375.00	148.50	4
25	375.00	148.50	600.00	148.50	4
26	222.74	126.00	242.74	126.00	5
27	242.74	126.00	267.74	126.00	6
28	267.74	126.00	277.74	126.00	5
29	277.74	126.00	600.00	126.00	6
30	221.24	125.50	241.24	125.50	4
31	241.24	125.50	242.74	126.00	6
32	241.24	125.50	266.24	125.50	4
33	266.24	125.50	267.74	126.00	5
34	266.24	125.50	276.24	125.50	4

35	276.24	125.50	277.74	126.00	6
36	277.74	125.50	600.00	125.50	4
37	174.74	110.00	194.74	110.00	5
38	194.74	110.00	219.74	110.00	6
39	219.74	110.00	229.74	110.00	5
40	229.74	110.00	600.00	110.00	6
41	193.24	109.50	194.74	110.00	6
42	173.24	109.50	193.24	109.50	4
43	218.24	109.50	219.74	110.00	5
44	193.24	109.50	218.24	109.50	4
45	218.24	109.50	228.24	109.50	4
46	228.24	109.50	229.74	110.00	6
47	228.24	109.50	600.00	109.50	4
48	117.24	97.50	137.24	97.50	5
49	115.74	97.00	117.74	97.50	5
50	137.24	97.50	162.24	97.50	6
51	162.24	97.50	172.24	97.50	5
52	172.24	97.50	237.24	97.50	6
53	237.24	97.50	247.24	97.50	6
54	247.24	97.50	600.00	97.50	6
55	115.74	97.00	135.74	97.00	4
56	135.74	97.00	137.24	97.50	6
57	135.74	97.00	160.74	97.00	4
58	160.74	97.00	162.24	97.50	5
59	160.74	97.00	170.74	97.00	4
60	170.74	97.00	172.24	97.50	6
61	170.74	97.00	235.74	97.00	4
62	235.74	97.00	237.24	97.50	6
63	235.74	97.00	245.74	97.00	4
64	245.74	97.00	247.24	97.50	6
65	245.74	97.00	600.00	97.00	4
66	79.74	85.00	120.00	85.00	1
67	120.00	85.00	138.00	76.00	1
68	40.56	76.00	138.00	76.00	7
69	138.00	76.00	142.00	74.00	7
70	142.00	74.00	177.00	74.00	7
71	177.00	74.00	199.00	85.00	7
72	199.00	85.00	209.00	85.00	7
73	209.00	85.00	235.00	72.00	7
74	235.00	72.00	600.00	72.00	7
75	.00	70.00	28.00	70.00	8
76	28.00	70.00	40.00	76.00	2
77	28.00	70.00	28.56	70.00	8
78	28.56	70.00	40.56	70.00	7
79	28.56	70.00	600.00	70.00	8
80	.00	60.00	600.00	60.00	9

ISOTROPIC SOIL PARAMETERS

9 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	105.0	110.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	16.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	43.0	50.0	70.0	27.0	.00	.0	1
5	43.0	50.0	70.0	27.0	.00	.0	1
6	43.0	50.0	.0	13.0	.00	.0	1
7	110.0	120.0	300.0	12.0	.00	.0	1

8	90.0	105.0	450.0	9.0	.00	.0	1
9	105.0	115.0	.0	32.0	.00	.0	1

PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 6 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	82.50
2	26.95	82.50
3	34.04	82.50
4	39.74	82.50
5	45.41	82.50
6	600.00	82.50

BOUNDARY LOAD(S)

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	275.00	284.50	808.0	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

The Active And Passive Portions Of The Sliding Surfaces Are Generated According To The Rankine Theory.

500 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	118.00	97.25	141.50	97.25	.25
2	249.50	97.25	330.00	97.25	.25

Following is the Most Critical Of The Trial Failure Surface Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	118.23	99.41
2	119.97	98.41
3	121.45	97.50
4	122.04	97.13
5	260.48	97.20

6	260.72	97.50
7	265.94	106.03
8	268.07	109.50
9	268.47	110.00
10	273.69	118.53
11	277.97	125.50
12	278.37	126.00
13	283.59	134.53
14	288.82	143.05
15	289.53	144.22
16	290.43	145.77

FACTOR OF SAFETY = 1.35 (with equipment loads)
FACTOR OF SAFETY = 1.56 (without equipment loads)

ATTACHMENT A-9
REVISED OPERATIONS PLAN

**~~LANDFILL~~ OPERATIONS PLAN
FOR
HARDEE COUNTY LANDFILL**

Prepared for:

Hardee County
Solid Waste Department
685 Airport Road
Wauchula, Florida
863-773-5089

Prepared by:

SCS Engineers
3012 U.S. Highway 301 North, Suite 700
Tampa, Florida 33619
(813) 621-0080

File No. 09199033.08
May 16, 2003
Revised September 30, 2003

Appendix A

MRF Operation Plan

(Refer to MRF Operations Permit for Copy)

Appendix C

Training Certificates

Kohl Consulting Inc.
Is Proud to Certify That

Janice Williamson

Has Successfully Completed the
16 Hour Initial Training Course for
Materials Recovery Facility Operators Entitled :

16-Hour Initial Training Course Materials
Recovery Facility Operators (#198)
November 27th and 28th, 2001

And Has Successfully Completed the Required Examination
in Accordance with the Training Requirements
for Waste Processing Facility Operators in Florida
Signed this 4th Day of November, 2001

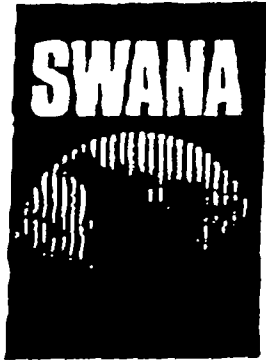


Chris S. Kohl

President

**Florida Chapter of Governmental Refuse Collection and
Disposal Association**

in conjunction with



**University of Florida
Center for Training, Research and Education
for Environmental Occupations**



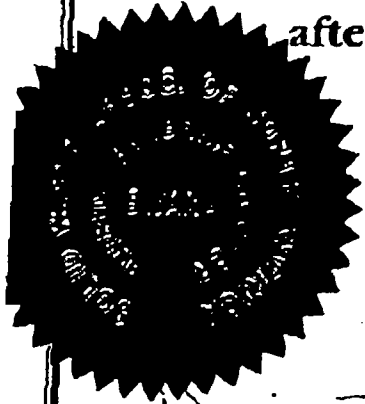
certifies that

Janice Williamson

after determination by review of experience, training and examination
is hereby designated a

Certified Sanitary Landfill Operator

June 15, 1998



William R. ...

**President
FLORIDA CHAPTER**

Certificate # 0552

William T. Engle

**Director
UF/TREEO**

NUM. 303 ENGINEERS
FMA NU.1 3006001949
04-01-03 07:40M P.03

ENVIRONMENTAL SAFETY & HEALTH INSTITUTE

Environmental Safety & Health Institute, Training Office
1840 Southside Boulevard Suite 3-C Jacksonville, Florida 32216 Telephone (904) 723-5840

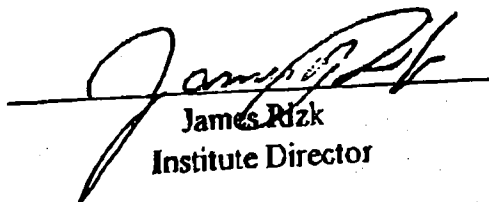
Certify that

Janice Williamson


Certificate Number 2400199-04

has successfully completed the requisite training for
OSHA 40-Hour Hazardous Materials/Waste: Health & Safety
and in evidence thereof is awarded this

Certificate of Completion


James Rizk
Institute Director




Margaret Ahren
Training Coordinator

Last Date of Attendance: January 29, 1999

Expiration Date: January 29, 2000

Kohl Consulting Inc.

Is Proud to Certify That

Jerry Hutto

**Has Successfully Completed the
16 Hour Initial Training Course for
Materials Recovery Facility Operators Entitled :**

**16-Hour Initial Training Course Materials
Recovery Facility Operators (#198)
November 27th and 28th, 2001**

**And Has Successfully Completed the Required Examination
in Accordance with the Training Requirements
for Waste Processing Facility Operators in Florida
Signed this 4th Day of November, 2001**



Chris S. Kohl

President



UNIVERSITY OF FLORIDA

*Center for Training, Research and Education for Environmental Occupations
(TREEO Center)*

certifies that

STEVE STRICKLAND

attended

Solid Waste Landfill Operator Short School

November 13-15, 1996

and is awarded this

Certificate of Attendance

Date issued: 11/15/96

CEU's : 2.0

A handwritten signature in black ink, reading "William T. Engel, Jr.".

*Dr. William T. Engel, Jr.
Director*



This is to certify that

Jerry Hutto

has met the Solid Waste Association of North America's eligibility requirements and passed a comprehensive examination. Therefore SWANA hereby designates Jerry Hutto as a:

Certified Landfill Technical Associate

As of 9/13/02 until 9/13/05

Certification No. 64524

RA Person

Richard A. Person
SWANA Certification Board Chairman



Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Class I, II, III Landfill Operator**
Track: **Standard Landfill Track**

Initial Date: **05/20/94**
Expiration Date: **05/19/03**

Status: **Current**

WILLIAMSON, JANICE
RECYCLING COORDINATOR
HARDEE COUNTY
685 Airport Rd
Wauchula, FL 33873-0246

Phone: (863) 773-5089
Fax: (863) 773-3907

Time Period: **05/20/94 - 05/19/97**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
21	Solid Waste Landfill Operator's Short School	University of Florida - TREEO	05/20/94	Initial
53	Hazardous Waste Management for Government Employees	University of Florida - TREEO	10/26/94	6
36	Waste Screening and Identification for Landfill Operators and Spotters	University of Florida - TREEO	03/16/95	8
59	FDEP HHW & Conditionally Exempt SQG Waste Mgmt Mtg [5/1/96]	Florida Department of Environmental Protection	05/01/96	5
Total hours toward Continuing Education:				19

Time Period: **05/20/97 - 05/19/00**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
90	Recycling Coordinators Training Course (Basic Recycling Training) [5/19-21/97]	University of Florida - TREEO	05/21/97	8
106	FDEP HHW & Conditionally Exempt SQG Waste Mgmt Mtg [5/6-8/98]	Florida Department of Environmental Protection	05/07/98	5
142	OSHA 8-Hour Refresher for Hazardous Waste Operations and Emergency Response	University of Florida - TREEO	05/07/99	4
135	FDEP HHW & Conditionally Exempt SQG Waste Mgt Workshop [5/5-7/99]	Florida Department of Environmental Protection	05/07/99	5
166	FDEP HHW & Conditionally Exempt SQG Waste Mgt Workshop [5/1-3/00]	Florida Department of Environmental Protection	05/04/00	5
167	8-Hour HazWoper OSHA Refresher	Florida Department of Environmental Protection	05/05/00	4
Total hours toward Continuing Education:				31

Time Period: **05/20/00 - 05/19/03**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
198	FDEP HHW & Conditionally Exempt SQG Waste Mgmt Mtg [4/30-5/1/01]	Florida Department of Environmental Protection	05/02/01	5
199	FDEP 8 Hour HazWoper OSHA Refresher [5/1/01]	Florida Department of Environmental Protection (SQG)	05/03/01	4
197	16-Hour Initial Training Course for Materials Recovery Facility (MRF) Operators	Kohl Consulting, Inc.	11/28/01	0

Total hours toward Continuing Education: 9

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 2/6/2002 3:31:00 PM
Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Material Recovery Facility Operator**
 Track: **MRF**

Initial Date: **11/28/01** Status: **Current**
 Expiration Date: **11/27/04**

WILLIAMSON , JANICE
 RECYCLING COORDINATOR
 HARDEE COUNTY
 685 Airport Rd
 Wauchula, Fl 33873-0246

Phone: (863) 773-5089
 Fax: (863) 773-3907

Time Period: **11/28/01 - 11/27/04**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
197	16-Hour Initial Training Course for Materials Recovery Facility (MRF) Operators	Kohl Consulting, Inc.	11/28/01	Initial

Total hours toward Continuing Education: 0

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu
 or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 2/6/2002 3:31:00 PM
 Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Spotter / Waste Screener**
Track: **Spotter**

Initial Date: **10/08/02**
Expiration Date: **10/07/05**

Status: **Current**

Albritton , Donald
HEO
Hardee County Solid Waste
685 Airport Rd
Wauchula, FL 33873

Phone: (863) 773-5089
Fax: (863) 773-3907
Email: teresa.carver@hardeecounty.net

Time Period: **10/08/02 - 10/07/05**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
36	Waste Screening and Identification for Landfill Operators and Spotters	University of Florida - TREEO	10/08/02	Initial

Total hours toward Continuing Education: 0

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.docc.ufl.edu or jtoucht@treeo.docc.ufl.edu or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 10/24/2002 2:36:00 PM
Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: Material Recovery Facility Operator
Track: MRF

Initial Date: 11/28/01
Expiration Date: 11/27/07 **Status: Current**

Hutto , Jerry
 RRO
 Hardee County Solid Waste
 685 Airport Rd
 Wauchula, Fl 33873-0246

Phone: (863) 773-5089
 Fax: (863) 773-3907

Time Period: **11/28/01 - 11/27/04**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
197	16-Hour Initial Training Course for Materials Recovery Facility (MRF) Operators	Kohl Consulting, Inc.	11/28/01	Initial
160	SWANA-Manager of Landfill Operations (MOLO)	Solid Waste Association of North America (SWANA - Florida Chapter)	09/13/02	8

Total hours toward Continuing Education: 8

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu
 or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 12/6/2002 9:40:34 AM
 Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Class I, II, III Landfill Operator**
Track: **Standard Landfill Track**

Initial Date: **09/13/02**
Expiration Date: **09/12/05**

Status: **Current**

Hutto , Jerry
RRO
Hardee County Solid Waste
685 Airport Rd
Wauchula, FL 33873-0246

Phone: (863) 773-5089

Fax: (863) 773-3907

Time Period: **Prior to Initial Date**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
21	Solid Waste Landfill Operator's Short School	University of Florida - TREEO	05/21/93	20
36	Waste Screening and Identification for Landfill Operators and Spotters	University of Florida - TREEO	03/16/95	8
39	Stormwater Management for Landfills	University of Florida - TREEO	09/19/95	8
91	Eight-Hour Spotter Training for Construction and Demolition Sites	University of Florida - TREEO	03/26/98	8
71	Asbestos Awareness Course for Landfill Operators	University of Florida - TREEO	04/22/99	4
102	Hazardous Materials in Construction and Demolition Waste	University of Florida - TREEO	04/22/99	4
197	16-Hour Initial Training Course for Materials Recovery Facility (MRF) Operators	Kohl Consulting, Inc.	11/28/01	10

Time Period: **09/13/02 - 09/12/05**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
160	SWANA-Manager of Landfill Operations (MOLO)	Solid Waste Association of North America (SWANA - Florida Chapter)	09/13/02	Initial

Total hours toward Continuing Education: 0

Hours taken prior to your initial course do not count toward your solid waste training.

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu
or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 12/6/2002 9:40:34 AM
Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Spotter / Waste Screener**
Track: **Spotter**

Initial Date: **10/08/02**
Expiration Date: **10/07/05**

Status: **Current**

Moises , Serrano
Hardee County Solid Waste
685 Airport Rd
Wauchuala, FL 33873

Phone: (863) 773-5089
Fax: (863) 773-3907
Email: teresa.carver@hardeecounty.net

Time Period: **10/08/02 - 10/07/05**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
36	Waste Screening and Identification for Landfill Operators and Spotters	University of Florida - TREEO	10/08/02	Initial

Total hours toward Continuing Education: 0

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu
or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 10/24/2002 2:37:00 PM
Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Spotter / Waste Screener**
Track: **Spotter**

Initial Date: **10/08/02**
Expiration Date: **10/07/05**

Status: **Current**

Wingo , Stephen
RRO
Hardee County Solid Waste
865 Airport Rd
Wauchula, FL 33873

Phone: (863) 773-5089
Fax: (863) 773-3907
Email: teresa.carver@hardeecounty.net

Time Period: **10/08/02 - 10/07/05**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
36	Waste Screening and Identification for Landfill Operators and Spotters	University of Florida - TREEO	10/08/02	Initial

Total hours toward Continuing Education: 0

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 10/24/2002 2:31:00 PM
Date Printed: Tuesday, March 04, 2003

Florida DEP Solid Waste Management Facility Operator Transcript

Certificate: **Class I, II, III Landfill Operator**
 Track: **Standard Landfill Track**

Initial Date: **11/15/96**
 Expiration Date: **11/14/05**

Status: **Current**

Strickland , Steve
 HEO
 Hardee County Solid Waste
 685 AIRPORT RD
 WAUCHULA, FL 33873

Phone: (863) 773-5089
 Fax: (863) 773-3907

Time Period: **11/15/96 - 11/14/99**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
21	Solid Waste Landfill Operator's Short School	University of Florida - TREEO	11/15/96	Initial
91	Eight-Hour Spotter Training for Construction and Demolition Sites	University of Florida - TREEO	03/26/98	8
111	Landfill Operations and Waste Screening for Class I, II, III Sites	Kohl Consulting, Inc.	04/20/99	7

Total hours toward Continuing Education: 15

Time Period: **11/15/99 - 11/14/02**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
124	Landfill Compaction Training School	Caterpilla & Ringhaver Equipment	10/12/00	5
212	Introduction to Electrical Maintenance	University of Florida - TREEO	09/11/02	16

Total hours toward Continuing Education: 21

Time Period: **11/15/02 - 11/14/05**

<u>Course #</u>	<u>Course Completed</u>	<u>Course Provided By</u>	<u>Completion Date</u>	<u>Hours</u>
(No courses completed)				

Initial hours are not counted toward continuing education.

If you have any questions, please contact djenkin@treeo.doce.ufl.edu or jtoucht@treeo.doce.ufl.edu
 or call 352.392.9570 extensions 127, 112, or 130.

Last Updated: 1/29/2002 3:02:00 PM
 Date Printed: Tuesday, March 04, 2003

Appendix D

Contingency Equipment and Waste Facility Contact List

Equipment Contingency

D7R Cat Dozier –

5-year maintenance agreement (Jan. 2003 – Jan. 2008) with Ringhaver Equipment covers replacement of the machine due to manufacturers defects.

Rental – Annual agreement with Ringhaver Equipment Company, 9797 Gibsonton Drive, Riverview, FL 33569, (813) 671-3700

Loader –

Rental – Annual agreement with Ringhaver Equipment Company, 9797 Gibsonton Drive, Riverview, FL 33569, (813) 671-3700

Flatbed dump truck –

Two spares on site or borrow from Public Works Department

Pick-up Truck –

Can substitute with old Blazer on site or borrow a vehicle from Public Works.

Water Pumps –

Replace with new pumps or rentals available through Barney Pumps, 3907 Hwy 98 South, Lakeland, FL 33802. (863) 665-8500

NEIGHBORING LANDFILLS TO HARDEE COUNTY

LANDFILL NAME	TYPE	COUNTY	CITY	PHONE NUMBER
Polk County North Central Landfill	Class I	Polk	Eaton Park	(863) 284-4319
Southeast County Landfill	Class I	Hillsborough	Picnic	(813) 671-7739
Central County Solid Waste Disposal Complex	Class I	Sarasota	Sarasota	(941) 861-1570
Highlands County Solid Waste Management Center	Class I	Highlands	Sebring	(863) 655-6483
Pembroke – Fort Meade Landfill	Class III	Polk	Fort Meade	(863) 285-8393
Cedar Trail Landfill	Class III	Polk	Bartow	(863) 533-8776

Appendix I

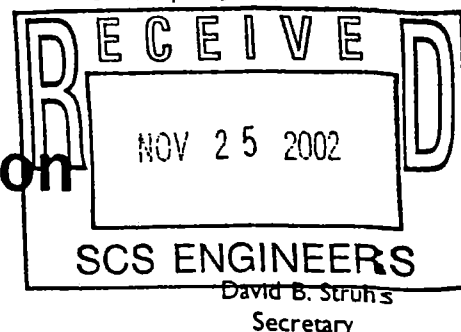
**Current FDEP Permit
(Number 38414-002-SO)**



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619



NOTICE OF PERMIT

November 22, 2002

Hardee County Board of
County Commissioners
Ms. Janice Williamson,
Solid Waste Superintendent
685 Airport Road
Wauchula, FL 33873

Dear Ms. Williamson:

Enclosed is the Modification Number 38414-006 to Permit Number 38414-002-SO, issued pursuant to Section(s) 403.087(1), Florida Statutes.

A person whose substantial interests are affected by this permit (or permit modification) may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Blvd., MS 35, Tallahassee, Florida 32399-3000, within fourteen (14) days of receipt of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within fourteen (14) days shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

"More Protection, Less Process"

Printed on recycled paper.

Hardee County BOCC
c/o Ms. Janice Williamson
Modification No.: 38414-006
Permit No.: 38414-002-SO

November 22, 2002
Page Two

- (d) A statement of the material facts disputed by the petitioner, if any;
- (e) A statement of the facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition and to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C. Mediation is not available.

This permit (or permit modification) is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Chapters 62-110 and 28-106, F.A.C. Upon timely filing a petition or a request for an extension of time this permit (or permit modification) will not be effective until further Order of the Department.

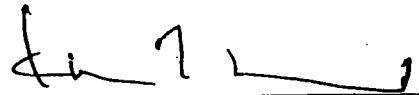
Hardee County BOCC
c/o Ms. Janice Williamson
Modification No.: 38414-006
Permit No.: 38414-002-SO

November 22, 2002
Page Three

When the Order (permit or permit modification) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Blvd., MS 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab

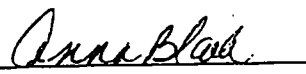
Attachment

cc: Elected Official Notification List
Ray Dever, P.E., SCS Engineering
Susan Pelz, P.E., FDEP Tampa (permit notebook)
Richard Tedder, P.E., FDEP Tallahassee
Douglas Beason, OGC, FDEP Tallahassee
Fred Wick, FDEP Tallahassee

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on November 22, 2002 to the listed persons.

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(10), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


Clerk

11/22/2002
Date



Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

November 22, 2002

PERMITTEE:

Hardee County Board of
County Commissioners
Ms. Janice Williamson,
Solid Waste Superintendent
685 Airport Road
Wauchula, FL 33873

Re: Modification #38414-006 to existing Operation Permit
Permit No.: 38414-002-SO, Hardee County
Hardee County Class I Landfill

Dear Ms. Williamson:

Your existing operation permit No. 38414-002-SO is hereby modified as follows:

SPECIFIC CONDITIONS:

2.j. and 10.a

10.b.

TYPE OF MODIFICATION:

References revised plans for
sequence of filling.

Deletes condition no longer
needed.

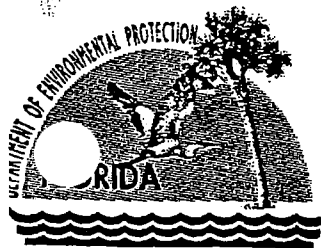
General Information: This modification is to revise the sequence of filling.

This letter and its attachments constitute a complete permit and replaces all previous permits and permit modifications for the above referenced facility.

Sincerely

Deborah A. Getzoff
Director of District Management
Southwest District

DAG/kbf/ab
Attachments



Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

PERMITTEE

Hardee County Board of
County Commissioners
Ms. Janice Williamson,
Solid Waste Superintendent
685 Airport Road
Wauchula, Fl 33873

PERMIT/CERTIFICATION

GMS ID No: 4025C30001
Permit No: **38414-002-SO**
Date of Issue: 11/19/98
Expiration Date: **11/19/2003**
County: Hardee
Lat/Long: 27° 34' 10" N
81° 47' 01" W
Sec/Town/Rge: 35/33S/25E
Project: Hardee County
Class I Landfill
Operation

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-3, 62-4, 62-302, 62-330, 62-520, 62-522, and 62-701. The above named permittee is hereby authorized to perform the activities shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

To operate a Class I landfill and related facilities (approximately 12.5 acres), referred to as the Hardee County Regional Landfill, subject to the specific and general conditions attached, located at 675 Airport Road, east of the City of Wauchula, Hardee County, Florida. The specific conditions attached are for the operation of:

1. Class I Landfill Disposal Facility
2. Special Waste Management

General Information - Active Site:

Maximum elevation (including cover): +160 ~~140~~ feet NGVD [~~Sheet 7, SC#2.j.5 i(2)~~]
Disposal Acreage: 12.5ac.
Est. Date of Closure: September 2003 ~~March 2004~~ [~~SC#2.d., page 3-4~~]
Bottom Liner, Leachate Collection System:
In-situ clay bottom w/geosynthetic sidewalls.
Perimeter leachate collection system.

Replaces Permit No.: S025-214306
Includes Modification Number: 38414-004 dated 08/10/2001,
38414-005 dated 10/22/2001, and **38414-006 dated 11/22/2002**.

This permit contains compliance items summarized in **Attachment 1** that shall be complied with and submitted to the Department by the dates noted. If the compliance dates are not met and submittals are not received by the Department on the dates noted, enforcement action may be initiated to assure compliance with the conditions of this permit.

"More Protection, Less Process"

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.161, 403.727, or 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of rights, nor any infringement of federal, State, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
 - (a) Have access to and copy any records that must be kept under conditions of the permit;

GENERAL CONDITIONS:

(General Condition #7, cont'd)

(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

(a) A description of and cause of noncompliance; and

(b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-730.300, Florida Administrative Code, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

GENERAL CONDITIONS:

13. This permit also constitutes:

- (a) Determination of Best Available Control Technology (BACT)
- (b) Determination of Prevention of Significant Deterioration (PSD)
- (c) Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
- (d) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

- (c) Records of monitoring information shall include:
- 1. the date, exact place, and time of sampling or measurements;
 - 2. the person responsible for performing the sampling or measurements;
 - 3. the dates analyses were performed;
 - 4. the person responsible for performing the analyses;
 - 5. the analytical techniques or methods used;
 - 6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

GENERAL CONDITIONS:

16. In the case of an underground injection control permit, the following permit conditions also shall apply:

(a) All reports or information required by the Department shall be certified as being true, accurate and complete.

(b) Reports of compliance or noncompliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(c) Notification of any noncompliance which may endanger health or the environment shall be reported verbally to the Department within 24 hours and again within 72 hours, and a final written report provided within two weeks.

1. The verbal reports shall contain any monitoring or other information which indicate that any contaminant may endanger an underground source of drinking water and any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

2. The written submission shall contain a description of and a discussion of the cause of the noncompliance and, if it has not been corrected, the anticipated time the noncompliance is expected to continue, the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance, and all information required by Rule 62-28.230(4)(b), F.A.C.

(d) The Department shall be notified at least 180 days before conversion or abandonment of an injection well, unless abandonment within a lesser period of time is necessary to protect waters of the State.

GENERAL CONDITIONS:

17. The following conditions also shall apply to a hazardous waste facility permit.

(a) The following reports shall be submitted to the Department:

1. Manifest discrepancy report. If a significant discrepancy in a manifest is discovered, the permittee shall attempt to rectify the discrepancy. If not resolved within 15 days after the waste is received, the permittee shall immediately submit a letter report, including a copy of the manifest, to the Department.

2. Unmanifested waste report. The permittee shall submit an unmanifested waste report to the Department within 15 days of receipt of unmanifested waste.

3. Biennial report. A biennial report covering facility activities during the previous calendar year shall be submitted by March 1 of each even numbered year pursuant to Chapter 62-730, F.A.C.

(b) Notification of any noncompliance which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be reported verbally to the Department within 24 hours, and a written report shall be provided within 5 days. The verbal report shall include the name, address, I.D. number, and telephone number of the facility, its owner or operator, the name and quantity of materials involved, the extent of any injuries, an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain:

1. A description and cause of the noncompliance.

2. If not corrected, the expected time of correction, and the step: being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

(c) Reports of compliance or noncompliance with, or any progress reports on, requirements in any compliance schedule shall be submitted no later than 14 days after each schedule date.

(d) All reports or information required by the Department by a hazardous waste permittee shall be signed by a person authorized to sign a permit application.

PECIFIC CONDITIONS:

1. **Landfill Designation.** This site shall be classified as a Class I landfill and shall be operated in accordance with all applicable requirements of Chapters 62-3, 62-4, 62-302, 62-330, 62-520, 62-522, and 62-701, Florida Administrative Code (F.A.C.), and all applicable requirements of Department Rules.
2. **Permit Application Documentation.** This permit is valid for operation of the Class I landfill and related facilities in accordance with Department rules, the conditions of this permit, and the reports, plans and other information, submitted by Post, Buckley, Schuh and Jernigan, Inc. (PBSJ) (or as otherwise noted) as follows:
 - a. Hardee County Regional Landfill, Application for Renewal of Operation Permit, dated March 1997 (received March 11, 1997);
 - b. Additional information dated April 29, 1997 (received April 30, 1997);
 - c. Additional information (concerning groundwater contour maps) dated May 8, 1997 (received May 9, 1997);
 - d. Response to Request for Additional Information dated May 28, 1997 for the Renewal of Operations Permit..., dated June 1997 (received June 27, 1997);
 - e. Additional information (concerning evaluation of existing LCS) dated November 24, 1997 (received December 1, 1997);
 - f. Response to Request for Additional Information dated July 25, 1997 for the Renewal of Operations Permit..., dated December 31, 1997 (received January 2, 1998);
 - g. Response to Request for Additional Information dated January 30, 1998 for the Renewal of Operations Permit..., dated April 24, 1998 (received April 27, 1998), including, but not limited to, Section 7, "Landfill Operation Requirements";
 - h. Response to Request for Additional Information dated January 30, 1998 for the Application for Construction Permit..., dated April 24, 1998 (received April 27, 1998), including the following information as appropriate:
 - 1) Information concerning Section 8, "Water Quality and Leachate Monitoring Requirements" and Appendix D, "Water Quality Monitoring Plan Modification,"
 - 2) Section 5, "Landfill Construction Requirements" (Attachment B), and
 - 3) Proposed Surface Water Sampling Point (Attachment S);

SPECIFIC CONDITIONS:

(Specific Condition #2. cont'd)

i. Plan Sheets entitled, Hardee County Regional Landfill Operations Permit Renewal, dated March 1997 including the following sheets:

- 1) Aerial Surveys received April 30, 1997:
 - a) Sheet 2A of 5
 - b) Sheet 2B of 5
 - c) Sheet 3A of 5
 - d) Sheet 3B of 5
- 2) The following sheets signed and sealed June 26, 1997 (received June 27, 1997):
 - a) Sheet 6, "Sequencing Plan, Sequence 1 through Sequence 6";
 - b) Sheet 7, "Sequencing Plan, Sequence 7 and Details";
 - c) Sheet 8, "Cross Sections".
- 3) Sheet 4 of 5, "Site Plan" as revised June 1997 (received June 27, 1997); and
- 4) Sheet 5 of 5, including revisions April, June and August 1997, "Gas Management System and Miscellaneous Details at Closure" (received January 2, 1998).

j. Information concerning modified sequence of filling, prepared by SCS Engineers, Inc., as follows (replaces previous information as appropriate):

- 1) "Hardee County Landfill Operations Modification,..." information dated December 13, 2000 (received December 13, 2000);
- 2) "Response to Florida Department of Environmental Protection Comments, Hardee County Class I Landfill Modification of Sequence of Filling,..." dated May 11, 2001 (received May 14, 2001);
- ~~3) Plans titled, Hardee County Landfill Minor Operational Fill Sequence Revisions (9 sheets), dated May 2001 (received May 14, 2001);~~
- 4) Letter dated October 8, 2002, application form and calculations, received October 14, 2002;
- 5) Plans titled, Hardee County Landfill Operational Fill Sequence, revised November 2002, received November 18, 2002.
New 08/10/2001, Amended 11/22/2002.

k. and in accordance with applicable Department rules.
New 08/10/2001.

ECIFIC CONDITIONS:

3. Permit Modifications.

a. Any activities not previously approved as part of this permit shall require a separate Department permit unless the Department determines a permit modification to be more appropriate. Permits shall be modified in accordance with the requirements of Rule 62-4.080, F.A.C. A modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review by the Department is considered a substantial modification.

~~b. This permit does not authorize the operation of the leachate storage tanks system until the Certification of Construction Completion and supporting documentation has been specifically approved, in writing, by the Department. Operation of this system shall require a minor modification of this permit.~~
Deleted 10/22/2001.

4. Permit Renewal.

a. No later than one hundred eighty (180) days before the expiration of this Operation Permit, the permittee shall apply for a renewal of a permit on forms and in a manner prescribed by the Department, in order to assure conformance with all applicable Department rules. Permits shall be renewed at least every five years as required by Rule 62-701.330(3), F.A.C.

b. The slope stability of the proposed 3H:1V slopes for the baled waste shall be evaluated specifically in the permit renewal application, if 3H:1V slopes are proposed for the final closure design. The interface friction angle of the bales shall be estimated, modeled, or otherwise determined in order to provide reasonable assurance that the bales, when placed at a 3H:1V slope in an undrained condition, including equipment loading, will not present a risk of failure with a reasonable factor of safety.
New 08/10/2001.

5. Prohibitions. The prohibitions of Rule 62-701.300, F.A.C., shall not be violated by the activities at this facility.

6. Special Wastes.

a. The design, operation, and monitoring of disposal or control of any "special wastes" shall be in accordance with the information listed in Specific Condition #2.g., Section 7; Rules 62-701.300(8) and 62-701.520, F.A.C.; and any other applicable Department rules, to protect the public safety, health and welfare.

b. Large items such as mattresses, televisions, microwaves, sofas, other furniture, etc. shall be baled and disposed with other baled wastes or disposed in the loose waste active face. [ref. Specific Conditions (SC)#2.f., page 2, and #2.d., page 4] In the event that special handling of bulky wastes is required, the Department shall be notified and a minor modification of the Operations Plan may be required to incorporate those management procedures.

SPECIFIC CONDITIONS:

(Specific Condition #6. cont'd)

c. **Household hazardous waste (HHW) management.** HHW shall be managed as indicated in the information submitted in Specific Condition #2.g., above, and the conditions below.

- 1) At least weekly, spillage at the HHW Collection Center Facility shall be removed and properly packaged for disposal.
- 2) Liquids shall not be discharged outside of the containment structures of the HHW Collection Center.
- 3) Non-latex paints shall not be air dried.
- 4) Materials shall be stored within containment areas at all times.
- 5) Records on the quantities of HHW collected and removed for disposal shall be compiled monthly and maintained at the facility and copies provided to the Department upon request.

d. **White Goods.** White goods which may contain chlorofluorocarbons (CFCs, such as freon), shall be stored and managed in a manner such that the CFCs are not discharged to the atmosphere. White goods which have had the refrigerant appropriately removed shall be clearly marked.

e. **Scrap Metal.** Scrap metals which may include residual contaminants such as gasoline, oil, paint, antifreeze, PCBs, etc., shall be stored and managed such that the residues or constituents thereof are not spilled, leaked, dumped, or otherwise discharged onto the soil or into surface or groundwaters. Scrap metals shall be stored on an impervious surface. [ref. SC#2.d., page 5]

f. **Lawn Mowers.** Lawn mowers which contain oil or gasoline shall not be accepted. [ref. SC#2.g., page 7-3]

g. **Asbestos.** Asbestos shall be managed in accordance with Rule 62-701.520(4), F.A.C.; the information listed in Specific Condition #2.d., Section 9; and all other applicable federal and Department rules.

h. **C&D Debris.** Construction and demolition debris may be disposed within the lined, Class I disposal cell, subject to the following:

- 1) The C&D debris shall be disposed in a separate area of the Class I cell, as indicated in the Sequencing Plan Sheets [ref. SC#2.i(2), above].

SPECIFIC CONDITIONS:

(Specific Condition #6.h. cont'd)

2) C&D debris shall be compacted and sloped in a manner consistent with the final design grades and elevations of the Class I cell.

3) Within 90 days of issuance of this permit, the previous C&D debris disposal area shall be covered with a minimum of 24 inches of soil, compacted and sloped to promote drainage and a vegetative cover shall be established. The permittee shall notify the Department when these activities are complete.

4) No C&D debris shall be placed in Sequence #7 [ref. SC#2.i(2), and #2.f.(page 2)].

5) C&D debris shall not be placed in areas with ponded leachate. The C&D debris disposal area within the Class I disposal cell (shown in the Sequencing Plans, SC#2.i(2)) shall be dry prior to the disposal of any C&D debris. [ref. SC#2.d., page 2, and #2.g., page 7-2,]

i. **Yard Trash.** Yard trash shall be processed at least once every six months. [ref. SC#2.d, page 5 and #2.g., page 7-3] Processed yard trash and wood wastes which do not include painted or treated wood may be used for sideslope stabilization and erosion control in the Class I Landfill. Yard trash shall not be disposed in the Class I Landfill.

7. Landfill Operation Requirements.

a. The permittee shall operate this facility in accordance with Rule 62-701.500, F.A.C.; the information submitted in the references listed in Specific Condition #2, above; and applicable Department rules.

b. Leachate shall not be deposited, injected, dumped, spilled, leaked, or discharged in any manner to soils, surface water or groundwater outside the liner system at any time during the construction or operation of this facility.

c. The permittee shall clearly stake/mark the location of the edge of the liner and maintain the locations as the landfill increases in elevation.

d. Litter shall be collected and disposed in the Class I Landfill at least weekly, or more frequently if necessary.

8. Operating Personnel. As required by Rules 62-701.500(1) and 62-701.730(8), F.A.C., at least one trained operator shall be at the Class I and C&D landfills at all times when the landfill receives waste. At least one trained spotter shall be at each working face (i.e. C&D and loose waste) when waste is received. Training documentation shall be maintained at the landfill site, and copies shall be provided to the Department upon request.

SPECIFIC CONDITIONS:

9. **Operation Plan and Operating Record.** Each landfill owner or operator shall have an operational plan which meets the requirements of Rules 62-701.500(2) and 62-701.730, F.A.C. A copy of the Department approved permit, operational plan, construction reports and record drawings, and supporting information shall be kept at the facility at all times for reference and inspections. Operating records as required by Rules 62-701.500(3) and 62-701.730, F.A.C., are part of the operations plan, and shall also be maintained at the site.
10. **Method and Sequence of Filling.**
a. The method and sequence of filling shall be in accordance with the Sequencing Plans [ref. SC#2.j.5 (3), above], ~~except as specified herein.~~
Amended 08/10/2001, 11/22/2002.

~~b. This modified permit authorizes Fill Sequences 1 and 2 only (Sheets 4 and 5 of 9, [ref. SC#2.j(3)]). Later filling sequences which include placement of baled waste at (or to construct) slopes greater than 4H:1V are not authorized, at this time.~~
New 08/10/2001, Deleted 11/22/2002.
11. **Waste Records.**
a. Records shall be maintained as required by Rules 62-701.500(4), and 62-701.500(13), F.A.C., and the conditions of this permit. These records shall be maintained onsite, and copies provided to the Department upon request.

b. The owner or operator shall conduct a survey of the Class I disposal area, and shall estimate the remaining disposal capacity and site life as required by Rule 62-701.500(13)(c). **Annually, no later than April 15th**, a copy of this survey, and supporting capacity calculations, signed and sealed by a registered professional engineer or land surveyor, as appropriate, shall be submitted to the Department. A topographic survey shall be conducted, and submitted with the permit renewal application required by Specific Condition #4.
12. **Control of Access.** Access to, and use of, the facility shall be controlled as required by Rule 62-701.500(5), F.A.C. Pursuant to Rule 62-701.500(12), F.A.C., the landfill shall have onsite roads which are maintained to allow access to monitoring devices and stormwater controls, for landfill inspections and for fire fighting.
13. **Monitoring of Waste.** Wastes shall be monitored as required by Rule 62-701.500(6), F.A.C. The permittee shall not accept hazardous waste or any hazardous substance at this site. Hazardous waste is a waste as defined in Chapter 62-730, F.A.C. Hazardous substances are those defined in Section 403.703, Florida Statute or in any other applicable state or federal law or administrative rule. Sludges or other wastes which may be hazardous should be disposed of in accordance with Rules 62-701.300(4) and 62-701.500(6)(b), F.A.C.

SPECIFIC CONDITIONS:

14. Waste Handling Requirements.

a. All solid waste disposed of in the Class I area shall be covered as required by Rule 62-701.500(7), F.A.C. Initial cover shall be applied and maintained daily in accordance with Rule 62-701.500(7)(e), F.A.C., so as to protect the public health and welfare. Intermediate cover shall be applied and maintained in accordance with Rules 62-701.500(7)(a) and (f), F.A.C.

b. Alternate daily cover materials shall be approved by the Department prior to use at the facility. For those areas where solid waste will be deposited on the working face within 18 hours, initial cover may consist of a temporary cover or tarpaulin.

c. Areas which have significant vegetation shall be mowed as needed to provide adequate access for inspection and sampling activities.

d. The owner or operator shall conduct three random load checks per week on wastes which are not processed at the MRF and will be disposed in the "loose waste" working face. Documentation of the three random load checks, including descriptions (type and quantity) of unacceptable wastes discovered, shall be maintained on-site, and copies provided to the Department upon request. [ref. SC#2.g., pages 7-8 and 7-12]

e. Soil materials which have been previously used for intermediate or initial cover shall not be re-used for intermediate cover. These materials may be re-used as initial cover provided the runoff from these areas is managed as leachate.

f. Contaminated soils shall not be used for intermediate cover. These materials may be used for initial cover provided the runoff from these areas is managed as leachate. Analyses of the contaminated soils which demonstrate that the soils are not hazardous shall be maintained on-site, and copies provided to the Department upon request.

15. Working Face.

a. As required by Rule 62-701.500(7)(d), F.A.C., the owner or operator shall minimize the size of each working face to minimize leachate and the unnecessary use of cover material. The landfill may have 2 working faces, 1-"loose waste" and the other baled waste. C&D debris which has been mixed or commingled with other wastes is no longer considered to be C&D debris, and shall be disposed of as Class I waste.

Amended 08/10/2001.

SPECIFIC CONDITIONS:

(Specific Condition #15. cont'd)

b. Berms and swales as shown on the Sequencing Plans [ref. SC#2.i(2)] shall be maintained to prevent leachate runoff from the working face from entering the stormwater management system. Runoff from outside the bermed working face area will not be considered stormwater if the flow passes over areas which have not been intermediately covered as defined by Rule 62-701.200(55), F.A.C., and stabilized to prevent erosion.

16. **Final Cover.** Portions of the landfill which have been filled with waste to the extent of designed dimensions shall be closed **within 180 days** of reaching design dimensions in accordance with Rule 62-701.500(7)(g), F.A.C., and all applicable requirements of Department rules.

17. **Leachate Management.**

a. Leachate shall be managed in accordance with the requirements of Rule 62-701.500(8), F.A.C., and the information submitted in the references listed in Specific Condition #2, above.

b. No later than **thirty (30) days** prior to the expiration of any contracts or agreements for the disposal of leachate at wastewater treatment facilities, the permittee shall provide a copy of the contract renewal or the issuance of a new contract for leachate disposal. Since the current agreement expires January 11, 1999 [ref. SC#2.b., Attachment 7-4], this renewal information shall be submitted **initially, no later than December 12, 1998.**

c. In the event that the primary leachate disposal facility (i.e. City of Wauchula POTW) becomes unable or unwilling to accept leachate for disposal, **within three (3) days** of the cessation of leachate acceptance by the POTW, the landfill owner or operator shall notify the Department and shall explain the contingency measures which will be implemented. The contingency measures shall be implemented **within seven (7) days** of the cessation of leachate acceptance at the POTW [ref. SC#2.g., page 7-24], or in accordance with an alternate schedule approved by the Department.

d. Leachate generation reports shall be compiled monthly and submitted to the Department **quarterly, by January 15th, April 15th, July 15th and October 15th** each year.

1) Leachate generation reports shall include precipitation amounts, the number of open, intermediate and closed acres, and the quantities of leachate collected, stored or impounded, recirculated, and hauled off-site to a wastewater treatment facility.

SPECIFIC CONDITIONS:

(Specific Condition #17. cont'd)

e. ~~As part of the submittal for the Certification of Construction Completion for the new leachate storage tanks system (required by Specific Condition #13 of Permit Number 38414-001-SC), the permittee shall request a modification to this operating permit to include specific conditions for the operation of the new leachate storage tanks system.~~

Deleted 10/22/2001.

f. Leachate which has accumulated in low areas within the disposal area shall be removed **daily**, for off-site disposal or storage in the leachate storage tanks system.

g. Prior to permit renewal, an inspection, videotape or other appropriate assessment as approved by the Department, of the leachate collection system (LCS) shall be conducted. A report summarizing the results of this inspection shall be submitted to the Department **with the permit renewal application**. The inspection report shall include an evaluation of the effectiveness of the system, the location (indicated on a Site Plan) and cause of obstructions encountered, proposed corrective actions and schedule for implementation of corrective actions as appropriate. The permittee shall retain the videotape at the facility for reference and shall provide a copy to the Department upon request. VIDEOTAPE

h. For normal operations when both tanks are in use, each leachate storage tank shall contain no greater than 50% of the maximum capacity for each tank. In the event that the storage tanks contain greater than 50% of the maximum capacity for each tank, the owner or operator shall increase the quantity of leachate which is removed for off-site disposal each day in order to restore sufficient storage capacity and resume normal operations.

i. In the event of an emergency (i.e. substantial rainfall event), the maximum capacity of the tanks may temporarily be utilized. However, **within 2 weeks** of the emergency event, the operator shall ensure that sufficient storage capacity has been restored in the storage tanks system to resume normal operations.

j. **Tank Manufacturer's Inspection.**

1) The leachate storage tanks shall be inspected as required by Rule 62-701.400(6)(c)9., F.A.C.

SPECIFIC CONDITIONS:

(Specific Condition #17.j. cont'd)

2) Additionally, the permittee shall arrange for the tank manufacturer's initial inspection of the tank. This inspection shall be conducted **no later than one (1) year** after the tank's initial use. A copy of the manufacturer's inspection report shall be submitted to the Department **within 30 days** of the inspection. In the event that deficiencies are noted in the inspection report, the permittee shall propose corrective measures (including a schedule for implementation) to the Department. The deficiencies shall be corrected in accordance with the schedule approved by the Department.

k. The leachate storage tanks and LCRS shall be inspected at least weekly [ref. SC #2.h(2), pages 5-7 and 5-8].

18. Landfill Gas - NSPS and Title V Air Requirements.

a. This solid waste permit will meet the statutory requirement to obtain an air construction permit before modifying or constructing a source of air pollution, except for those landfills that are subject to the prevention of significant deterioration (PSD) requirements of Chapter 62-212, F.A.C. Facilities that are subject to the PSD requirements shall obtain an air construction permit from the Bureau of Air Regulation prior to beginning construction or modification pursuant to Rule 62-210.400, F.A.C.

b. The permittee shall comply with any applicable Title V air operation permit application requirements of Chapter 62-213, F.A.C., and 40 CFR 60, Subparts WWW and Cc, as adopted by reference at Rule 62-204.800, F.A.C. Title V Permit applications shall be submitted to the District Air Program Administrator or County Air Program Administrator with air permitting authority for the landfill.

c. The permittee shall submit to the Division of Air Resources Management, Department of Environmental Protection, Mail Station 5500, 2600 Blair Stone Road, Tallahassee, FL 32399-2400 any amended design capacity report and any Non-Methane Organic Compound (NMOC) emission rate report, as applicable, pursuant to 40 CFR 60.757(a)(3) and (b).

19. Gas Management and Monitoring.

a. Landfill gas shall be monitored as required by Rule 62-701.500(9), F.A.C. Landfill gas collection, monitoring and recovery systems shall be operated to comply with Rules 62-701.400(10) and (11), F.A.C., respectively.

SPECIFIC CONDITIONS:

(Specific Condition #19. cont'd)

b. The results of the quarterly monitoring as required by Rule 62-701.400(10)(c)2, F.A.C., shall be submitted by the following dates:

Quarter 1	April 15th
Quarter 2	July 15th
Quarter 3	October 15th
Quarter 4	January 15th

20. **Gas Monitoring Locations.** The gas monitoring probes GP-1 through GP-9 are shown on Sheet 5 of 5 in the Plan Sheets entitled, "Gas Management System and Miscellaneous Details at Closure," as revised April, June and August 1997 (received January 2, 1998), prepared by PBS&J. These probes, and the following structures shall be sampled **quarterly** for the Lower Explosive Limit (LEL) of methane, as described in Rule 62-701.400(10)(c), F.A.C.:

Maintenance Building
Materials Recovery Facility
Scalehouse/Administrative Offices
Kennel

21. **Gas Remediation.** If the Lower Explosive Limit (LEL) is greater than 25% inside structures both on or off of the landfill site, or greater than 100% at the property boundary, the owner shall submit to the Department **within 7 days** a remediation plan detailing the nature and extent of the problem and the proposed remedy. The remedy shall be completed **within 60 days** of detection unless otherwise approved by the Department.

22. **Waste Burning.** Open burning of solid waste is prohibited except in accordance with Rule 62-701.520(2), F.A.C. Controlled burning of solid waste is prohibited at this site except for clean vegetative and wood wastes which may be burned in a permitted air curtain incinerator in accordance with Rule 62-2.500(1)(e), F.A.C. Any accidental fires which require longer than one (1) hour to extinguish must be promptly reported to the Department of Environmental Protection.

23. **Closure Permit Requirements.** The landfill owner or operator shall submit a closure permit application to the Department, on DEP Form 62-701.900(1), for those portions of the landfill which have reached design dimensions and grades. The permit application shall be submitted either (whichever occurs first):

a. At least **90 days** prior to the date when wastes will no longer be accepted for active portions of the landfill, as required by Rule 62-701.600(3), F.A.C., or

b. **Within sixty (60) days** of completion of Sequence #4 [ref. SC#2.i(2)].

SPECIFIC CONDITIONS:

24. **Financial Assurance.** The permittee shall provide financial assurance for this landfill site in accordance with Rule 62-701.630, F.A.C.

a. All costs for closure and long-term care shall be adjusted and submitted **annually, by September 1st** each year, to: Solid Waste Manager, Solid Waste Section, Department of Environmental Protection, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

b. Proof that the financial assurance has been funded adequately shall be submitted **annually**, to: Financial Coordinator, Solid Waste Section, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.
Amended 08/10/2001.

25. **Control of Nuisance Conditions.** The operating authority shall be responsible for the control of odors and fugitive particulates arising from this operation. Such control shall minimize the creation of nuisance conditions on adjoining property. Complaints received from the general public, and confirmed by Department personnel upon site inspection, shall constitute a nuisance condition, and the permittee must take immediate corrective action to abate the nuisance. The owner or operator shall control mosquitoes and rodents or request such control measures from the local mosquito control office, so as to protect the public health and welfare.

26. **Facility Maintenance and Repair.** The site shall be properly maintained including erosion control, maintenance of grass cover, prevention of ponding, gas venting and monitoring systems repairs, groundwater monitoring system repairs, and repair and maintenance of leachate collection and removal systems, including leachate storage tanks system.

a. In the event of damage to any portion of the landfill site facilities or failure of any portion of the landfill systems (except routine equipment maintenance), the permittee shall **immediately (within 24 hours)** notify the Department of Environmental Protection explaining such occurrence and remedial measures to be taken and time needed for repairs. Written detailed notification shall be submitted to the Department **within seven (7) days** following the occurrence.

b. In the event that any portion of the groundwater monitoring system is damaged, remedial measures shall be completed within **sixty (60) days** of the written notification specified in Specific Condition #26.a. above, unless otherwise approved by the Department.

ECIFIC CONDITIONS:

(Specific Condition #26. cont'd)

c. In the event that the stormwater or leachate management systems are damaged or are not operating effectively, corrective actions shall be implemented within **thirty (30) days** of the written notification specified in Specific Condition #26.a. above, unless otherwise approved by the Department.

d. Repairs shall be initiated within 48 hours of detection of significant erosion in intermediately covered areas, or areas which discharge to the stormwater management system [ref. SC#2.6., page 10]. For the purposes of compliance with this Specific Condition, "significant" means that either:

- 1) the soil cover materials have eroded such that greater than 50% of the soil in that location has been eroded, or
- 2) waste is exposed.

27. **Stormwater System Management.** The landfill shall have a surface water management systems designed, constructed, operated, and maintained to prevent surface water from running onto waste filled areas, and a stormwater runoff control system designed, constructed, operated, and maintained to collect and control stormwater to meet the requirements of Chapter 62-330, F.A.C., and the requirements for management and storage of surface water in accordance with Rule 62-701.500(10), F.A.C., to meet applicable standards of Chapters 62-3, 62-302, and 62-330, F.A.C.

28. **Water Quality Requirements.** Landfills shall be designed, constructed, operated, maintained, closed, and monitored throughout its design period to control the movement of waste and waste constituents into the environment so that groundwater and surface water quality standards and criteria of Chapters 62-4, 62-302, and 62-520, F.A.C., will not be violated beyond the zone of discharge specified for the landfill.

29. **Water Quality Monitoring Quality Assurance.**

a. The field testing, sample collection and preservation and laboratory testing, including quality control procedures, shall be in accordance with methods approved by the Department in accordance with Rule 62-4.246 and Chapter 62-160, F.A.C. Approved methods published by the Department or as published in Standard Methods, A.S.T.M., or EPA methods shall be used.

SPECIFIC CONDITIONS:

(Specific Condition #29. cont'd)

b. All field and laboratory work done in connection with the facility's Water Quality Monitoring Plan shall be conducted by a firm possessing a Quality Assurance Project Plan or a Comprehensive Quality Assurance Plan approved by the Department to meet the requirements of Chapter 62-160, F.A.C. The Quality Assurance Plan must specifically address the types of sampling and analytical work that is required by the permit. The Quality Assurance Plan shall be required of all persons performing sampling or analysis, and shall be followed by all persons collecting or analyzing samples related to this permit. Documentation of an approved QAP shall be submitted with the first water quality reports conducted by either a new sampling organization or a new laboratory. Documentation shall include the completed signature page and the Table of Contents of the approved plan.

30. Zone of Discharge.

a. The zone of discharge for this site shall extend horizontally 100 feet from the limits of the landfill closure or to the property boundary, whichever is less, and shall extend vertically to the bottom of the surficial aquifer.

b. The permittee shall ensure that the water quality standards and minimum criteria for Class G-II groundwaters will not be exceeded at the boundary of the zone of discharge according to Rules 62-520.400 and 62-520.420, F.A.C.

31. Leachate Sampling. Leachate shall be sampled from Manhole 1 (see Sheet 4 of 5, ref. SC#2.i(3)) of the leachate collection system, and analyzed every 6 months for the following monitoring parameters:

Field parameters
Specific Conductivity
pH
Dissolved oxygen
Colors, sheens
(by observation)

Laboratory parameters
Total Ammonia - N
Bicarbonate
Chlorides
Iron
Mercury
Nitrate
Sodium
Total Dissolved Solids (TDS)
Those parameters listed in
40 CFR Part 258, Appendix I

SPECIFIC CONDITIONS:

(Specific Condition #31. cont'd)

In addition, leachate shall be sampled and analyzed annually for the parameters listed in 40 CFR Part 258, Appendix II. If this annual analysis indicates that a contaminant listed in 40 CFR 261.24 exceeds the regulatory level listed therein, the permittee shall initiate a monthly sampling and analysis program. If in any three consecutive months the same listed contaminant exceeds the regulatory level, the permittee shall, within 90 days, initiate a program designed to identify the source and reduce the presence of the contaminant in the leachate so that it no longer exceeds the regulatory level. This program may include additional monitoring of waste received and additional up-front separation of waste materials. Any leachate which is not recirculated or taken to a permitted industrial or domestic wastewater treatment facility shall be treated or managed so that no contaminant exceeds the regulatory level.

If in any three consecutive months no listed contaminant is found to exceed the regulatory level, the permittee may discontinue the monthly sampling and analysis and return to a routine sampling schedule.

32. **Surface Water Sampling.** Samples shall be collected every 6 months from location SW-1, (see Attachment S, ref. SC#2.h(3)). The samples shall be analyzed for the following parameters:

Field parameters

Specific Conductivity
pH
Dissolved Oxygen
Turbidity

Temperature
Colors and sheens
(by observation)

Laboratory parameters

Zinc
Unionized Ammonia
Total Hardness
Biochemical Oxygen Demand (BOD₅)
Copper
Iron
Mercury
Nitrate

Total Dissolved Solids (TDS)
Total Organic Carbon (TOC)
Fecal Coliform
Total Phosphorous
Chlorophyll A
Total Nitrogen
Chemical Oxygen Demand(COD)
Total Suspended Solids (TSS)
Those parameters listed in
40 CFR Part 258, Appendix I

Additional samples, monitoring points, and parameters may be required based upon subsequent analysis.

SPECIFIC CONDITIONS:

33. **Groundwater Monitoring Well and Piezometer Locations.** The groundwater monitoring wells shall be located as shown on the Site Plan, Attachment S [ref. SC#2.h(3)] (attached to this permit). All existing site wells and piezometers shall be kept in working condition in case they may be useful at a later date. The following monitoring wells are required to be sampled:

<u>Well No.</u>	<u>Aquifer</u>	<u>Designation</u>	<u>Location</u>
MW-1	Surficial	Detection	See Attached Site Plan
MW-2	Surficial	Detection	"
MW-4	Surficial	Background	"
MW-5	Surficial	Detection	"
MW-8*	Surficial	Detection	"
MW-9*	Surficial	Detection	"

<u>Piezometer</u>	<u>Location</u>
P-1	See Attached Site Plan
P-2	"
P-3	"
P-4	"
P-5	"
P-6	"
P-9	"
P-10	"
P-11	"
P-15*	"
P-16*	"

*Well/Piezometer to be constructed.

All wells and piezometers are to be clearly labeled and easily visible at all times.

SPECIFIC CONDITIONS:

34. **Groundwater Sampling.** All wells listed in Specific Condition No. 33 shall be sampled and analyzed semi-annually for the groundwater monitoring parameters listed as follows:

<u>Field parameters</u>	<u>Laboratory parameters</u>
Static Water Level before purging	Total Ammonia - N
Specific Conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

Semi-annually, Monitoring wells MW-6 and MW-7 shall be measured for groundwater elevations and specific conductivity only.

Semi-annually, all piezometers listed in Specific Condition No. 33 shall be measured for ground water and leachate elevations. [ref. SC #2.g, page 7-17]

Additional samples, wells, and parameters may be required based upon subsequent analysis. Compliance with groundwater standards will be based on analysis of unfiltered samples.

35. **Groundwater Monitoring Well Construction.** New wells MW-8 and MW-9, and new piezometers P-15 and P-16 must be constructed and documentation submitted in accordance with Permit No. 38414-001-SC. Any other new wells must be approved by the DEP in a permit modification, and the following information submitted:

a. Documentation of the following for each well installed:

Well Identification	Boring (Lithology) Log
Aquifer monitored	Total depth of well
Screen type and slot size	Casing diameter
Screen length	Casing type and length
Screen diameter	SWFWMD well construction permit Nos.
Elevation at top of casing	Elevation at ground surface

b. Within one week of well completion and development, each new well shall be sampled for the parameters listed in F.A.C. Rules 62-701.510(8)(a) and (d).

SPECIFIC CONDITIONS:

(Specific Condition #35. cont'd)

c. A surveyed drawing shall be submitted in accordance with Rule 62-701.510(3)(d)(1), F.A.C., showing the location of all monitoring wells (active and abandoned) and surface water monitoring stations horizontally located in degrees, minutes and seconds of latitude and longitude, the Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the surface water and monitor well identification numbers, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.

d. All wells not a part of the approved Water Quality Monitoring Plan are to be plugged and abandoned in accordance with Rule 62-532.440, F.A.C., and the Southwest Florida Water Management District. The permittee shall submit a written report to the Department providing verification of the well abandonment. A written request for exemption to the abandonment of a well must be submitted to the Department's Solid Waste Section for approval.

36. **Assessment Monitoring.** If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the permittee has 15 days to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis representative of current groundwater conditions at the facility, and assessment monitoring/corrective action as described in Rule 62-701.510(7), F.A.C., shall be initiated.

37. **Water Quality Reporting Requirements.** All leachate, surface water and groundwater quality monitoring shall be reported on the Department Form 62-522.900(2), Groundwater Monitoring Report (attached). This report shall contain all items listed in Rule 62-701.510(9)(a), F.A.C. The permittee shall submit to the Department the results of the analysis by **January 15th and July 15th**. The results shall be sent to: Solid Waste Section, Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

ECIFIC CONDITIONS:

38. **Groundwater Monitoring Plan Evaluation.** Every two years and prior to 90 days before the expiration of the Department Permit, the permittee shall submit an evaluation of the Groundwater Monitoring Plan as per Rule 62-701.510(9)(b), F.A.C. The evaluation shall include the applicable information as required by Rule 62-701.510(9), F.A.C., and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of groundwater contamination. Any groundwater contamination that may exist, shall be addressed as part of a groundwater investigation for the landfill assessment. The Groundwater Monitoring Plan shall be adequate to monitor any modifications to the existing landfill site including but not limited to closure. The first evaluation shall be submitted to the Solid Waste Section of the Department by July 1, 2000.
39. **Professional Certification.** Where required by Chapter 471 (P.E.) or Chapter 492 (P.G.), Florida Statutes, applicable portions of permit applications and supporting documents which are submitted to the Department for public record shall be signed and sealed by the professional(s) who prepared or approved them.
40. **General Conditions.** The permittee shall be aware of and operate under the "General Conditions". General Conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes.
41. **Permit Acceptance.** By acceptance of this Permit, the Permittee certifies that he/she has read and understands the obligations imposed by the Specific and General Conditions contained herein and also including date of permit expiration and renewal deadlines. It is a violation of this permit to fail to comply with all conditions and deadlines.
42. **Regulations.** Rule 62-701, F.A.C., effective April 23, 1997, is incorporated into this permit by reference.

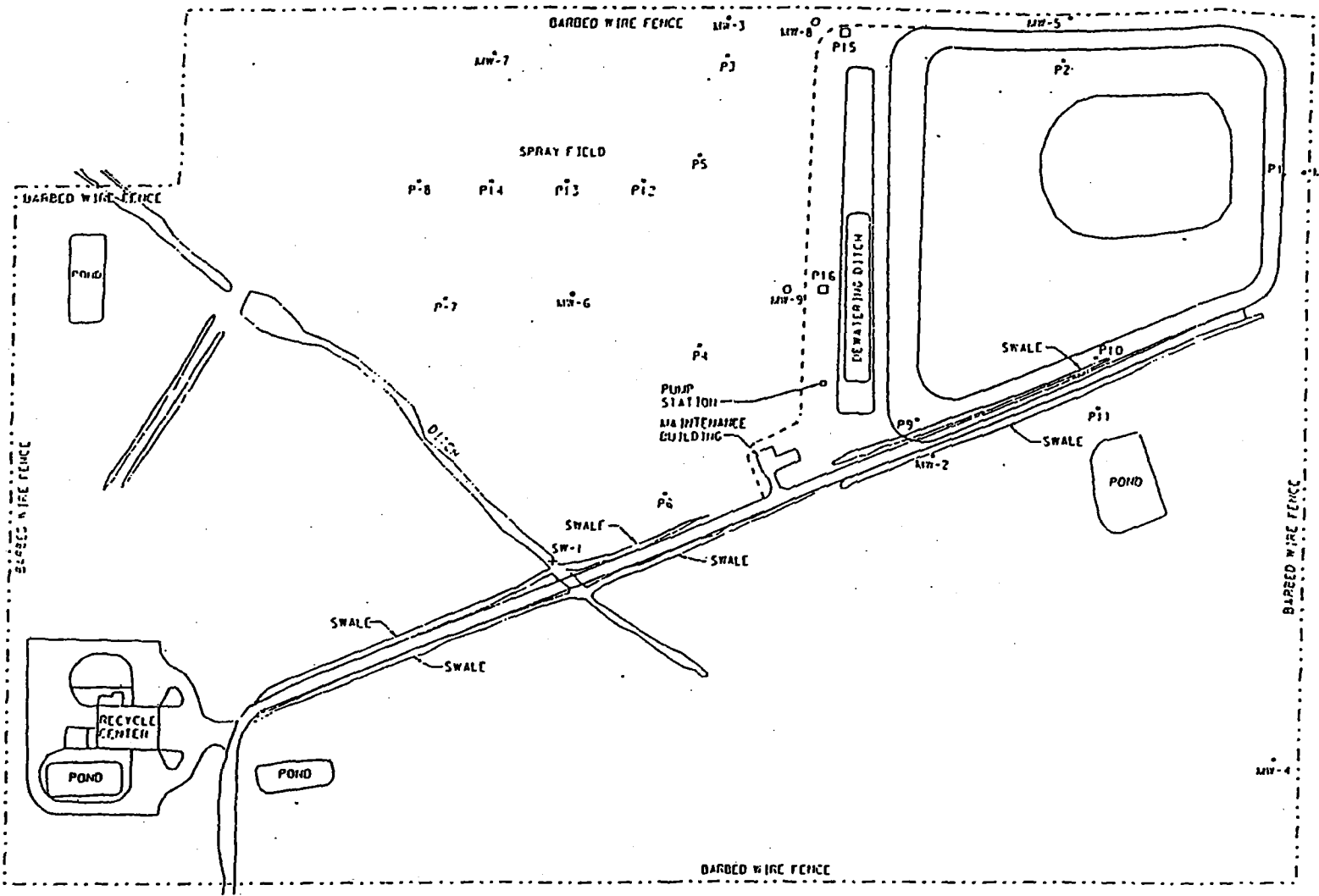
ATTACHMENT 1

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
4.	180 days prior to permit expiration	Permit Renewal Application
6.h(3)	Within 90 days of permit issuance	Complete Final Closure of old C&D disposal area
11.	Annually, by April 15th	Survey and capacity calculations
17.b.	30 days prior to expiration of contract	Submit copy of new or renewal contract with WWTP for leachate disposal
17.b.	December 12, 1998	Submit renewal to current leachate disposal agreement
17.d., 19.b., 20	Quarterly, by January 15th, April 15th, July 15th, and October 15th	Leachate generation reports, and Gas monitoring reports
17.j.	1 year after initial use	Tank Manufacturer's Inspection
17.j.	Within 30 days of inspection	Submit tank manufacturer's inspection report
21.	Within 60 days of detection	Completion of gas remediation
23.	90 days prior to date of final waste acceptance, or within 60 days of completion of Sequence #4	Closure Permit Application
24.	Annually, by September 1st	Financial assurance cost estimates
24.	Annually	Submit proof of funding

ATTACHMENT 1 (cont'd)

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
26.a.	Within 24 hours of occurrence	Notification of damage to any system
26.a.	Within 7 days of occurrence	Written notification
26.b.	Within 60 days of written notification	Complete groundwater monitoring system repairs
26.c.	Within 30 days of written notification	Implement corrective actions for stormwater or leachate management systems
31., 32., 34.	Semi-annually	Leachate sampled/analyzed; Surface water sampled/analyzed; Groundwater sampled/analyzed
31.	Annually	Leachate sampled/analyzed for 40 CFR Part 258, Appendix II parameters
35.b.	Within 1 week of well completion	New wells sampled
37.	Every 6 months, by January 15th and July 15th each year	Leachate, surface water, and groundwater quality reporting submitted
38.	Every two years, and 90 days prior to permit expiration	Evaluation of groundwater monitoring plan
38.	July 1, 2000	Evaluation of groundwater monitoring plan

SCALE: 1" = 200'



- LEGEND**
- MW-2 MONITORING WELL
 - P11 PIEZOMETER
 - PROPOSED LINER
 - MW-8 PROPOSED MONITORING WELL
 - P15 PROPOSED PIEZOMETER
 - FENCE
 - + SW-1 SURFACE WATER MONITORING POINT

HARDEE COUNTY SOLID WASTE MANAGEMENT FACILITY
SITE PLAN

PBS POST, BUCKLEY, SCURDIA, WILKINSON, INC.

DEP Form # <u>62-522.900(2)</u>
Form Title <u>Ground Water Monitoring Report</u>
Effective Date _____
DEP Application No. _____

Florida Department of Environmental Protection

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

GROUND WATER MONITORING REPORT

Rule 62-522.600(11)

PART I GENERAL INFORMATION

Facility Name _____

Address _____

City _____ Zip _____

Telephone Number () _____

The GMS Identification Number _____

DEP Permit Number _____

Authorized Representative Name _____

Address _____

City _____ Zip _____

Telephone Number () _____

Location of Discharge _____

Method of Discharge _____

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: _____

Signature of Owner or Authorized Representative

PART II QUALITY ASSURANCE REQUIREMENTS

Sample Organization Comp QAP # _____

Analytical Lab Comp QAP # /HRS Certification # _____

*Comp QAP # /HRS Certification # _____

Lab Name _____

Address _____

Telephone Number () _____

PART III ANALYTICAL RESULTS

Facility GMS #: _____ Sampling Date/Time: _____

Site ID #: _____ Report Period: _____
 (year/quarter)

Well Name: _____ Well Purged (Y/N): _____

Classification of Ground Water: _____ Well Type: () Background
 () Intermediate

Ground Water Elevation (NGVD): _____ () Compliance

 () Other
 or (MSL): _____

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Y/N	Analysis Method	Analysis Date/Time	* Analysis Results/Units	Detection Limits/Units

* Attach Laboratory Reports

APPENDIX B

RESPONSES TO JOHN MORRIS' MEMORANDUM DATED JUNE 12, 2003

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan (Section L). All replacement pages should be numbered and include the document title with the revision date as part of the header or footer on each revised page. To expedite the review process, on one set of the revisions to the narrative reports, deletions may be struckthrough (~~struekthrough~~) and additions may be shaded (shaded) or similar notation method may be used.

SECTION B - DISPOSAL FACILITY GENERAL INFORMATION

1. **B.13.:** It is indicated that the property is recorded as a disposal site in the County Land Records. Please indicate if this has been done to complete the requirements of Rule 62-701.610(5), F.A.C. If so, please provide a certified copy of the County record including the legal description and a scale-drawn map for that part of the property that has been so recorded. If not, please submit a revised application form for this item that indicates a "No" response.

Response: Hardee County Landfill is currently listed as a Political Subdivision of Hardee County. In the event that operations cease and full closure is planned, the county will abide by Rule 62-701.610(5), F.A.C. and a declaration to the public listing the land as a disposal area will be recorded in accordance with the rule. A revised application form has been submitted in Attachment B-1.

SECTION L - LANDFILL OPERATION REQUIREMENTS (Rule 62-701.500, F.A.C.) Landfill Operations Plan for Hardee County Landfill, prepared by SCS Engineers, dated May 16, 2003

2. **L.8.c. - Procedures for Managing Leachate if Regulated as Hazardous Waste.** Please submit revisions to this section to address the requirements of Rule 62-701.510(6)(c)2, F.A.C.

Response: Leachate is monitored from Manhole 9 every six months for the parameters specified in the permit. As per Rule 62-701.510(6)(c)2, F.A.C., if the leachate analysis indicates a contaminant listed in 40 CFR Part 261.24 exceeds the regulatory level, a monthly sampling of leachate will be instituted and FDEP notified. If in any three consecutive months no listed contaminant is found to exceed the regulatory limit, the monthly sampling will be discontinued and the routine sampling schedule will be reinstated. If the leachate exceeds the regulatory limit after three consecutive months of monitoring, the leachate is considered a hazardous waste and must be disposed of properly. Changes have been made to Section L.8.c. of the Operations Plan to reflect Rule 62-701.510(6)(c)2, F.A.C. The Operations Plan is

located in Attachment A-9.

3. **L.9 - Routine Gas Monitoring.** This section refers to Figure H-1 to present the locations of the perimeter gas probes and ambient gas monitoring location. Please submit a revised Figure H-1 in a black-and-white format no larger than 11x17 inches with larger identification numbers for the gas probes.

Response: Figure H-1 has been revised and is located in Attachment B-2.

SECTION M-WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

Attachment M-1- Biennial Groundwater Monitoring Plan Evaluation, prepared by SCS Engineers, dated May 12, 2003

Section 3 – Water Quality Monitoring Data Findings

4. **Some of the results provided in Attachment A (Ground Water Quality Data Charts) and in Attachment B (Water Quality Trend Analyses) for the “period of record” (June 1999 through December 2002) appear to be inconsistent with the data provided by Hardee County for the semi-annual ground water sampling events. Please review the following items and submit revisions as appropriate:**
 - a. **June 1999 – MW-2, turbidity @ 25.8 NTU**
 - b. **Dec. 1999 – MW-2, turbidity @ 15.6 NTU**
 - c. **June 2000 – MW-9, chromium @ 0.006 mg/L**
 - d. **Dec. 2000 – MW-1, iron @ 10.2 mg/L**
 - e. **Dec. 2001 – MW-9, ground water elevation @ 78.71 ft NGVD**
 - f. **Dec. 2002 – MW-4, iron @ 8.95 mg/L**

Response: The above-suggested revisions have been made and the corresponding revised spreadsheets for MW-1, MW-2, MW-4, and MW-9 are provided as Attachment B-3. The differences were caused by a combination of typographical and translation errors.

5. **Please submit revisions to reference the regulatory levels for the characteristic of toxicity as listed in 40 CFR Part 261.24.**

Response: Acknowledged, The reference to 40 CFR part 258 Appendix II has been changed to 40CFR Part 261.24, please find page 3-1 in Attachment B-4.

6. **Please submit revisions to indicate that field measurements of specific conductance were omitted from four of the eight sampling events during the “period of record” at wells MW-6 and MW-7.**

Response: Please find the statement concerning the omission of specific conductance measurements on page 3-1 in Attachment B-4. Specific conductance was not measured during four of the eight sampling events during the period of record. The omission of conductance data was due to sampling personnel's unfamiliarity with the requirements of the monitoring plan. The sampling contractor will be provided awareness training to ensure this oversight is not repeated.

- 7. Please submit revisions to the trend analysis of iron to reflect review comment Nos. 4.d. and 4.f.**

Response: Please find the revised iron trend analysis chart in Attachment B-5.

SECTION 4- GROUND WATER LEVELS AND FLOW ASSESSMENT

- 8. Please submit revision to Table 4-1, Figure E-6 and Figure E-9 to reflect review comment No. 4.e.**

Response: The revised Table and Figures are shown in Attachment B-6.

- 9. The horizontal hydraulic gradient value used in the calculation of ground water flow velocity appears to represent the low end of the range of gradient values along the west and east sides of the landfill as presented on the contour maps in Attachment E. It appears that the hydraulic gradient ranged from about 0.003 to 0.01 ft/ft between June 1999 and December 2002. Please review and revise the gradient value and ground water flow velocity calculation as appropriate.**

Response: The revised groundwater flow velocity calculation is shown on page 4-3 in Attachment B-7. The increase in groundwater flow velocity was also revised on page 5-2 as shown in Attachment B-8. The revised groundwater flow velocity ranges from 0.13 to 91 feet per year.

The maximum flow velocity was utilized in evaluating the adequacy of the Hardee County groundwater monitoring plan, however, it should be noted that 91 feet per year is a liberal estimate of the groundwater flow velocity onsite and is not representative of groundwater velocity at all locations.

SECTION 5- ADEQUACY OF THE WATER QUALITY MONITORING LOCATIONS AND SAMPLING FREQUENCY

- 10. Please submit revisions to this section to indicate that the maximum ground water elevations presented in Table 2-2 indicate the well screen were submerged for all wells in the monitoring plan (MW-1, MW-2, MW-4, MW-5, MW-8 and MW-9).**

Response: The text indicating the maximum water level exceeds the well screened interval in MW-1, MW-2, MW-4, MW-5, MW-8 and MW-9 is shown on page 5-2 in Attachment

B-8.

- 11. It is indicated that analyses of ground water samples should be conducted for the parameters listed in EPA Method 8260 rather than those listed by 40 CFR Part 258, Appendix I. Please note that this proposed change is not consistent with Rule 62-701.510(8)(a), F.A.C., and does not address the metals that are listed in 40 CFR Part 258, Appendix I. Please submit revisions to this section that are consistent with the provided rule reference.**

Response: The reference to EPA 8260 has been changed to 40 CFR Part 258, Appendix I to reflect FDEP's request. The revision was made on page 5-3 in Attachment B-9. EPA 8260 was initially referenced rather than 40 CFR Part 258 under the provision of Rule 62-701.510(6)(a), in order to reduce the number of parameters analyzed in the onsite monitoring wells.

The historical water quality analytical data from the on site monitoring wells and the leachate collection system have not approached the regulatory limits for the 46 organic constituents listed in Appendix I. Therefore, Hardee County may elect to request a reduction of the parameters under the provision of Rule 62-701.510(6)(a) during a subsequent permit renewal.

Section 6 – Proposed Modifications/Recommendations to the Monitoring Program

- 12. Please submit revisions to this section that reference Department Standard Operating Procedure (SOP) FS 2200(Ground Water Sampling) and the criteria for field measured turbidity (<20 NTU) and dissolved oxygen (<20% saturation) during well purging.**

Response: The revisions were made on pages 6-1 of section 6 and are provided as Attachment B-10.

- 13. Please submit revisions to the proposed ground water parameters to delete reference to the parameters listed by EPA Method 8260 and replace with the parameters listed in 40 CFR Part 258, Appendix I.**

Response: The reference to EPA Method 8260 has been replaced with the parameters listed in 40 CFR Part 258, Appendix I. The changes are shown on page 6-2 of section 6 and provided as Attachment B-11. EPA 8260 was initially referenced rather than 40 CFR Part 258 under the provision of Rule 62-701.510(6)(a), in order to reduce the number of parameters analyzed for in the onsite monitoring wells.

- 14. Please submit revisions to this section to include proposed surface water parameters to be consistent with Rule 62-701.510(8)(b), F.A.C.**

Response: The above revisions were made on page 6-3 of section 6 and are provided as Attachment B-12. The proposed surface water location will be sampled for those parameters listed in Rule 62-701.510(8)(b), F.A.C. Surface water sampling will

be conducted at SW-2 unless no surface water is present for the entire semi-annual period. The Hardee County Solid Waste Operation Manager will prepare a daily log (excluding Sundays) documenting the presence or absence of water in the creek. If water is observed, the Landfill Manger will be notified and will coordinate with the laboratory contractor to collect a sample.

Attachment M-2- Water Quality and Leachate Monitoring Plan, Hardee County Landfill, prepared by SCS Engineers, dated May 16, 2003

Section 2.0-Water Quality and Leachate Monitoring Network

- 15. Please submit revisions to this section to indicate that surface water sampling shall be conducted unless no surface water is present at the designated sampling location (SW-2) for the entire semi-annual period. Please submit additional revisions to this section to indicate that Hardee County Solid Waste personnel shall prepare a daily log (excluding Sundays) of the occurrence of water in the creek at the downstream property boundary to document the inability to collect a surface water sample during dry periods.**

Response: The above referenced changes were made on page 2 of the Water Quality and Leachate Monitoring Plan and are included as Attachment B-13. The proposed surface water location will be sampled for those parameters listed in Rule 62-701.510(8)(b), F.A.C. Surface water sampling will be conducted at SW-2 unless no surface water is present for the entire semi-annual period. The Hardee County Solid Waste Operation Manager will prepare a daily log (excluding Sundays) documenting the presence or absence of water in the creek. If water is observed, the Landfill Manger will be notified and will coordinate with the laboratory contractor to collect a sample.

Section 3.0-Water Quality and Leachate Monitoring Parameters

- 16. Please submit revisions to this section to indicate that ground water samples shall be analyzed for parameters that are consistent with review comment No.13.**

Response: The groundwater parameters were revised on page 3 and are shown in Attachment B-14.

- 17. Please submit revisions to this section to indicate that ground water samples shall be analyzed for total phosphates rather than total phosphorous.**

Response: The changes are reflected on page 4 and shown as Attachment B-15.

Section 4.0 Sampling Methods

18. **Please submit revisions to this section to indicate that sampling and analyses shall be conducted using methods consistent with the Department's Standard Operating Procedures.**

Response: The revisions to the above referenced section were made on page 5 and provided as Attachment B-16.

Section N – Special Waste Handling Requirements (Rule 62-701.520, F.A.C.)

19. **N.4 – Procedures for Contaminated Soil Disposal. Please submit revisions to this section of the supporting document to indicate that contaminated soil accepted at Hardee County Landfill may also be stored only within the bermed working face area and may be used as initial cover only within the bermed working face area, and not stockpiled outside the liner.**

Response: The County accepts contaminated soils on the condition that they are not hazardous. It is a requirement that all incoming contaminated soils be TCLP (Toxicity Characteristic Leaching Procedure) tested first before being accepted at this facility for disposal. Accepted contaminated soils are disposed of in the currently active disposal cell. The contaminated soil is mixed with clean soil and disposed of as daily cover, and used only within the lined and bermed working face.

If the TCLP testing shows the soil cannot be accepted at the landfill the hauler will be notified. A front-end loader will isolate the contaminated soil while keeping it within the lined area and marking it with applicable markers. The contaminated solid will be covered to minimize contact with stormwater. Covers include 20-mil Visqueen rolls, which are available at the Household Hazardous Waste Collection Center. Hardee County will contact the person/entity who dumped the load and request removal within 48 hours. If the 48 hours expire the County will contact an independent waste hauler for proper disposal of the contaminated soil at a permitted hazardous waste management facility. Changes have been made Section N.4., located in Attachment B-17.

Section O – Gas Management System Requirements (Rule 62-701.530, F.A.C.)

20. **O.3.: Please submit a revised application form for this item that references Section O of the supporting document**

Response: Changes have been made to the application form. The revised form is located in Attachment B-18.

21. **Please submit revisions to Section O.3 of the supporting document to be consistent with the requirements of Rules 62-701.530(3)(a) and (3)(b), F.A.C.**

Response: Changes have been made Section O.3 to reflect Rule 62-701.530(3)(a) and (3)(b), F.A.C. The revised Section is located in Attachment B-19.

ATTACHMENT B-1
REVISED PERMIT APPLICATION FORM

13. Property recorded as a Disposal Site in County Land Records: Yes No
14. Days of operation: 312 days/year - Monday through Saturday
15. Hours of operation: 7:30 a.m. - 5:00 p.m.
16. Days Working Face covered: 312
17. Elevation of water table: 80.0 Ft. (NGVD 1929)
18. Number of monitoring wells: 7
19. Number of surface monitoring points: 1
20. Gas controls used: Yes No Type controls: Active Passive
 Gas flaring: Yes No Gas recovery: Yes No
21. Landfill unit liner type:
- | | |
|---|--|
| <input checked="" type="checkbox"/> Natural soils | <input type="checkbox"/> Double geomembrane |
| <input type="checkbox"/> Single clay liner | <input type="checkbox"/> Geomembrane & composite |
| <input checked="" type="checkbox"/> Single geomembrane side | <input type="checkbox"/> Double composite |
| <input type="checkbox"/> Single composite | <input type="checkbox"/> None |
| <input type="checkbox"/> Slurry wall | |
| <input type="checkbox"/> Other Describe: _____ | |
22. Leachate collection method:
- | | |
|---|---|
| <input type="checkbox"/> Collection pipes | <input type="checkbox"/> Sand layer |
| <input type="checkbox"/> Geonets | <input type="checkbox"/> Gravel layer |
| <input type="checkbox"/> Well points | <input type="checkbox"/> Interceptor trench |
| <input type="checkbox"/> Perimeter ditch | <input type="checkbox"/> None |
| <input checked="" type="checkbox"/> Other Describe: <u>French Drain</u> | |
23. Leachate storage method:
- Tanks
 Surface impoundments
 Other Describe: _____
24. Leachate treatment method:
- | | |
|---|---|
| <input type="checkbox"/> Oxidation | <input type="checkbox"/> Chemical treatment |
| <input type="checkbox"/> Secondary | <input type="checkbox"/> Settling |
| <input type="checkbox"/> Advanced | |
| <input type="checkbox"/> None | |
| <input checked="" type="checkbox"/> Other <u>No on-site treatment (storage only). Off-site disposal at WWTP</u> | |

ATTACHMENT B-2

**REVISED FIGURE H-1
(SEE APPENDIX H FOR THE OPERATIONS PLAN)**

ATTACHMENT B-3

**REVISED SPREADSHEET S FOR
MW-1, MW-2, MW-4, & MW-9 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

HARDEE COUNTY LANDFILL

MW-1 DATA SUMMARY										
Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
Inorganic Parameters:										
Arsenic ¹	50	µg/L	<5.0	6	<5.0	<5.0	<5.0	13	<5.0	7
Barium ¹	2,000	µg/L	<20	<20	<20	20	<20	50	30	20
Cadmium ¹	5	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
Chromium ¹	100	µg/L	5	<5.0	13	7	<5.0	11	<5.0	<5.0
Copper ²	1,000	µg/L	10	<10	<10	<10	<10	10	<10	<10
Iron ²	300	µg/L	7,930	8,820	8,610	10,200	7,510	13,900	5,370	8,710
Lead ¹	15	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	5	2	<1.0
Nickel ¹	100	µg/L	<10	<10	<10	<10	<10	<10	20	<30
Sodium ¹	160,000	µg/L	13,000	14,000	13,000	20,000	17,000	17,000	17,000	12,000
Vanadium ¹	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc ²	5,000	µg/L	4	7	9	10	6	9	11	2
Total Dissolved Solids ²	500	mg/L	178	230	180	354	286	248	212	241
Chloride ²	250	mg/L	32	32	35	56	41	38	39	41
Nitrate, Nitrogen ¹	10	mg/L	0.04	0.04	0.19	0.05	0.08	1.35	0.07	<0.02
Nitrite, Nitrogen ¹	1	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Nitrate + Nitrite Nitrogen (NO ₂ + NO ₃) ¹	10	mg/L	0.04	0.04	0.19	0.05	0.08	1.35	0.08	<0.02
Nitrogen Ammonia (As N) ³	2.8	mg/L	0.15	0.07	0.22	0.14	0.09	0.08	0.04	0.26
Field Parameters:										
Specific Conductance (Field)	NS	umho/cm	214	236	215	356	268	241	225	240
pH (Field) ²	6.5-8.5	Unit	5.07	4.84	4.95	4.83	4.82	4.76	5.05	4.77
Temperature (Field)	NS	Deg C	25.1	24.2	27.4	23.6	24.8	26.1	26.8	21.6
Turbidity (Field)	NS	NTU	16.3	19.8	19.1	14.2	8.83	127	1.40	2.86
Dissolved Oxygen (Field)	NS	mg/L	3	5	6.2	2.2	4.2	5.4	7.2	1.8
Organic Parameters:										
Total Xylenes ¹	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.00

Notes:

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

¹ Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

² Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

³ Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

HARDEE COUNTY LANDFILL

MW-2 DATA SUMMARY Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
Inorganic Parameters:										
Arsenic ¹	50	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium ¹	2,000	µg/L	<20	<20	<20	<20	<20	30	40	50
Cadmium ¹	5	µg/L	<2	<2	<2	<2	<2	<2	<2	4
Chromium ¹	100	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper ²	1,000	µg/L	10	<10	<10	<10	<10	<10	<10	20
Iron ²	300	µg/L	2,410	8,920	7,920	8,480	5,980	8,140	14,200	3,240
Lead ¹	15	µg/L	<1.0	<1.0	<1.0	<1.0	1	3	5	<1
Nickel ¹	100	µg/L	20	<10	<10	<10	<10	<10	<10	20
Sodium ¹	160,000	µg/L	8,700	8,900	6,700	7,200	6,900	8,800	14,000	24,000
Vanadium ¹	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc ²	5,000	µg/L	3	2	4	3	<2.0	7	28	<2
Total Dissolved Solids ²	500	mg/L	148	182	193	194	174	178	236	350
Chloride ²	250	mg/L	7	10	11	8.5	6.7	12	30	35
Nitrate, Nitrogen ¹	10	mg/L	0.03	0.06	0.07	0.03	0.11	0.06	0.07	<0.02
Nitrite, Nitrogen ¹	1	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Nitrate + Nitrite Nitrogen (NO2 + NO3) ¹	10	mg/L	0.03	0.06	0.07	0.03	0.11	0.06	0.08	<0.02
Nitrogen Ammonia (As N) ³	2.8	mg/L	0.15	0.10	0.19	0.14	0.06	0.14	0.18	<0.04
Field Parameters:										
Specific Conductance (Field)	NS	umho/cm	320	359	382	320	263	306	392	535
pH (Field) ²	6.5-8.5	Unit	6.60	6.76	6.83	6.64	6.34	6.47	6.44	6.62
Temperature (Field)	NS	Deg C	25.9	25.1	26.1	23.7	25.1	25.7	27.5	20.4
Turbidity (Field)	NS	NTU	25.8	15.6	28.5	16.4	21.6	6.33	17.30	25.10
Dissolved Oxygen (Field)	NS	mg/L	5.8	4.6	1.4	4.6	2.1	3.2	4.6	1.7
Organic Parameters:										
Total Xylenes ¹	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.0

Notes:

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

¹ Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

² Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

³ Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

HARDEE COUNTY LANDFILL

MW-4 DATA SUMMARY										
Background Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
Inorganic Parameters:										
Arsenic ¹	50	µg/L	8	8	8	<5.0	<5.0	14	10	14
Barium ¹	2,000	µg/L	<20	<20	<20	<20	40	30	40	40
Cadmium ¹	5	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	4
Chromium ¹	100	µg/L	<5.0	6	<5.0	7	9	5	5	5
Copper ²	1,000	µg/L	20	<10	<10	<10	<10	<10	<10	<10
Iron ²	300	µg/L	9,110	8,590	12,500	3,210	5,150	10,900	7,260	8,950
Lead ¹	15	µg/L	<1.0	1.0	<1.0	1	6	<1.0	<1.0	<1.0
Nickel ¹	100	µg/L	<10	<10	<10	<10	<10	<10	10	20
Sodium ¹	160,000	µg/L	4,600	4,600	6,600	3,800	6,100	6,700	5,800	3,000
Vanadium ¹	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc ²	5,000	µg/L	8	<2.0	<2.0	<2.0	4	<2.0	<2.0	<2.0
Total Dissolved Solids ²	500	mg/L	128	144	140	164	192	288	172	312
Chloride ²	250	mg/L	8.5	7.3	44	5.5	14	9	10	6.7
Nitrate, Nitrogen ¹	10	mg/L	0.02	<0.02	0.02	0.06	0.29	<0.02	0.75	<0.02
Nitrite, Nitrogen ¹	1	mg/L	<0.01	<0.01	0.02	<0.01	0.03	0.02	0.02	<0.01
Nitrate + Nitrite Nitrogen (NO ₂ + NO ₃) ¹	10	mg/L	0.02	<0.02	0.04	0.06	0.32	0.03	0.77	<0.02
Nitrogen Ammonia (As N) ³	2.8	mg/L	0.14	<0.04	0.21	<0.04	<0.04	0.22	0.16	0.16
Field Parameters:										
Specific Conductance (Field)	NS	umho/cm	182	116	195	123	138	299	189	363
pH (Field) ²	6.5-8.5	Unit	6.26	6.20	5.83	5.98	5.63	6.27	6.12	6.58
Temperature (Field)	NS	Deg C	22.8	23.4	23	23	24.3	23.3	24.7	21.8
Turbidity (Field)	NS	NTU	10.8	41	8.72	60.2	82.4	8.24	0.92	0.95
Dissolved Oxygen (Field)	NS	mg/L	2.8	4.8	1	1.8	2.4	2.8	3.5	1.5
Organic Parameters:										
Total Xylenes ¹	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.00

Notes:

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

¹ Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

² Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

³ Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

HARDEE COUNTY LANDFILL

MW-9 DATA SUMMARY Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
Inorganic Parameters:										
Arsenic ¹	50	µg/L	---	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium ¹	2,000	µg/L	---	---	100	<20	30	<20	30	<20
Cadmium ¹	5	µg/L	---	---	<2.0	<2.0	<2.0	<2.0	<2.0	3
Chromium ¹	100	µg/L	---	---	6.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper ²	1,000	µg/L	---	---	<10	<10	<10	<10	<10	<10
Iron ²	300	µg/L	---	---	3,320	1,320	1,140	580	300	350
Lead ¹	15	µg/L	---	---	<1.0	<1.0	3	<1.0	<1.0	<1.0
Nickel ¹	100	µg/L	---	---	<10	<10	<10	<10	<10	10
Sodium ¹	160,000	µg/L	---	---	31,000	36,000	25,000	14,000	6,200	9,800
Vanadium ¹	49	µg/L	---	---	<100	<100	110	<100	<100	<100
Zinc ²	5,000	µg/L	---	---	3	<2.0	3	29	9	12
Total Dissolved Solids ²	500	mg/L	---	---	130	150	114	64	60	138
Chloride ²	250	mg/L	---	---	62	74	24	5.2	3.7	10
Nitrate, Nitrogen ¹	10	mg/L	---	---	<0.02	<0.02	<0.02	<0.02	0.51	0.06
Nitrite, Nitrogen ¹	1	mg/L	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate + Nitrite Nitrogen (NO ₂ + NO ₃) ¹	10	mg/L	---	---	<0.02	<0.02	<0.02	<0.02	0.51	0.06
Nitrogen Ammonia (As N) ³	2.8	mg/L	---	---	0.23	0.07	<0.04	<0.04	0.07	<0.04
Field Parameters:										
Specific Conductance (Field)	NS	umho/cm	---	---	262	300	208	109	63	235
pH (Field) ²	6.5-8.5	Unit	---	---	4.82	5.06	6.76	5.46	5.21	6.13
Temperature (Field)	NS	Deg C	---	---	26.5	25.2	26.1	25.6	28	22.5
Turbidity (Field)	NS	NTU	---	---	2.84	4.15	19.6	5.74	0.84	8.02
Dissolved Oxygen (Field)	NS	mg/L	---	---	1	0.8	1.5	2.4	1.9	3.9
Organic Parameters:										
Total Xylenes ¹	10,000	µg/L	---	---	0.11	<0.11	<0.11	<0.11	<0.11	<1.00

Notes:

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

¹ Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

² Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

³ Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

ATTACHMENT B-4

**REVISED PAGE 3-1 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

SECTION 3

WATER QUALITY MONITORING DATA FINDINGS

This section summarizes water quality data for the period of record. Attachment A lists water quality data for each monitoring well for the period of record. The groundwater tables include values above the method detection limits (MDL) for FDEP drinking water standards listed in F.A.C. Chapter 62-550. The tables also include groundwater cleanup target levels, as listed in Chapter 62-777, F.A.C., for parameters that do not have primary and secondary drinking water standards. Attachment B includes trend analyses charts for constituents that were detected above the maximum concentration limit (MCL) for the applicable groundwater standards or that were consistently detected above the MDL in groundwater samples.

Semi-annual data for leachate monitoring is also shown in Attachment C. The data were compared to the toxicity standards listed in 40 CFR Part 261.24, in addition to primary and secondary drinking water standards, Chapter 62-550 F.A.C., groundwater cleanup target levels, Chapter 62-777, F.A.C., and surface water standards Chapter 62-302, F.A.C.

Samples were collected and analyzed for the parameters identified in the FDEP permit by Short Environmental Laboratory in accordance with F.A.C. Chapter 62-160 and F.A.C. 62-701.510(2) (b). The monitoring data discussed in this include the following sampling dates:

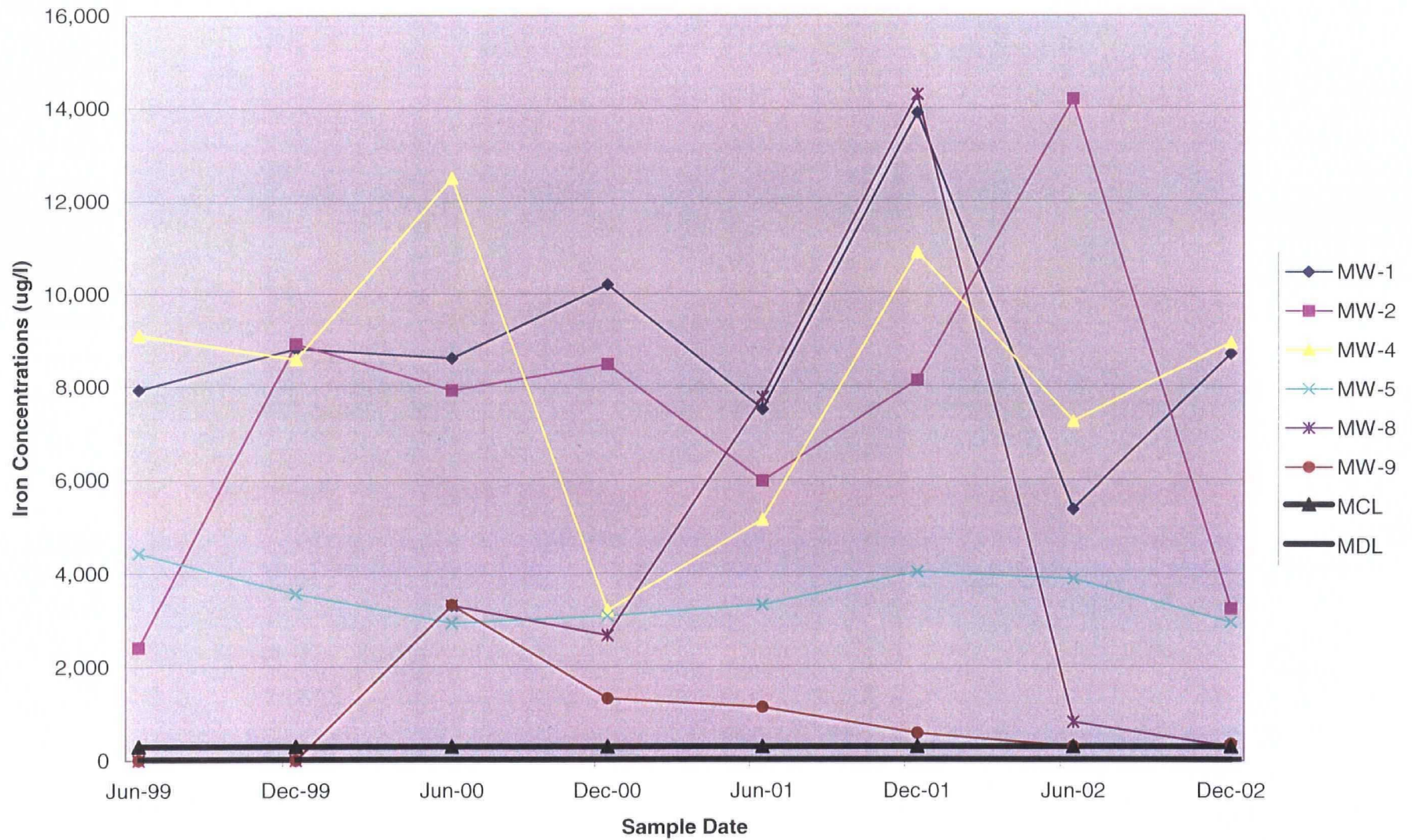
- June 1999
- December 1999
- June 2000
- December 2000
- June 2001
- December 2001
- June 2002
- December 2002

Surficial aquifer monitoring wells MW-8 and MW-9 were not sampled during the June 1999 and the December 1999 semiannual sampling events because they were not installed until April 2000. Also, surficial monitoring wells MW-6 and MW-7 were sampled for field conductivity as required by Specific Condition 34. However specific conductance was not measured during four of the eight sampling events during the period of record. The omission of conductance data was due to sampling personnel's unfamiliarity with the requirements of the monitoring plan., the contractor should take addition awareness to ensure this oversight is not repeated.

ATTACHMENT B-5

**REVISED IRON TREND ANALYSIS CHART OF THE BIENNIAL
GROUNDWATER MONITORING EVALUATION**

Iron Concentration Comparisons (ug/l)



ATTACHMENT B-6

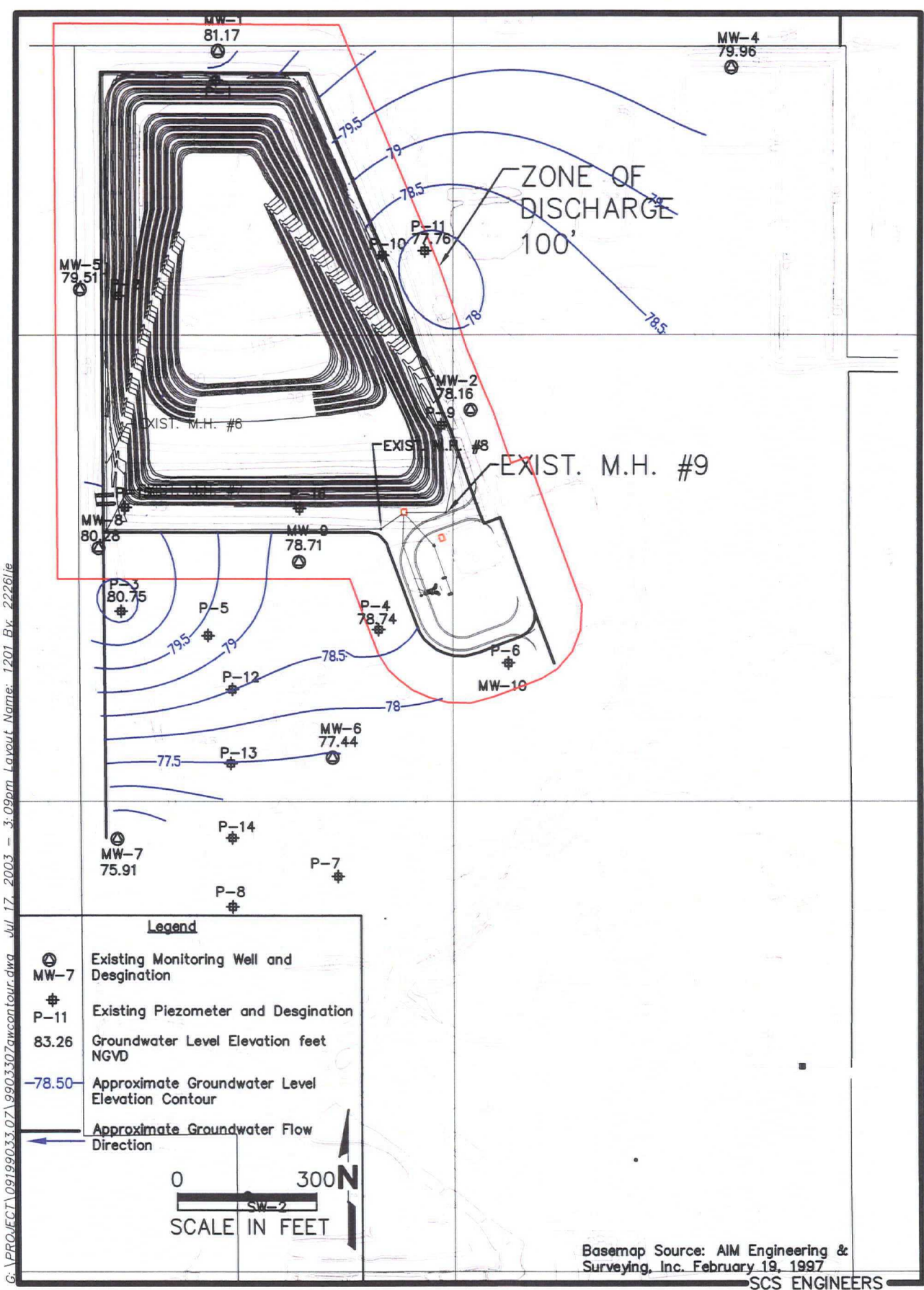
**REVISED TABLE 4-1, FIGURE E-6 & FIGURE E-9 OF THE BIENNIAL
GROUNDWATER MONITORING EVALUATION**

Table 4-1 Groundwater Elevations for the Piezometers and Groundwater Monitoring Wells located at the Hardee County Landfill

June 1999 through December 2002										
Location	Top of Casing Elevation (NGVD)	6/1/1999	12/6/1999	6/8/2000	12/6/2000	6/6/2001	12/10/2001	6/10/2002	12/16/2002	
		GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)
MW-1	87.97	79.97	82.17	78.27*	81.77	81.67	81.17	79.97	84.12**	
MW-2	85.86	76.86	78.76	75.56*	77.56	77.06	78.16	76.36	82.46**	
MW-4	87.16	77.71	79.96	76.56*	78.66	77.86	79.96	77.56	83.06**	
MW-5	88.76	77.71	79.76	76.46*	77.96	76.56	79.51	77.46	81.56**	
MW-6	87.94	75.59	ND	74.54	75.54	74.64	77.44	74.54*	83.44**	
MW-7	87.51	75.86	ND	74.36*	75.51	74.41	75.91	74.91	83.26**	
MW-8	88.98	ND	ND	76.18	77.58	75.58*	80.28	76.38	83.18**	
MW-9	88.71	ND	ND	75.51	76.91	75.31*	78.71	76.21	83.11**	
P-1	91.27	79.92	80.87	80.02	80.47	80.27	81.37**	77.47*	78.57	
P-2	90.66	77.56	79.46	76.56	77.61	76.46	79.76**	74.11*	78.46	
P-3	89.23	77.45	ND	ND	77.83	77.98	80.75	75.70*	80.70**	
P-4	88.34	76.44	77.64	75.39	76.5	Dry	78.74	72.44*	80.39**	
P-5	89.25	77.05	77.95	76.65	76.85	Dry	OBSTRUCTED	74.45*	80.55**	
P-9	87.06	76.56	78.86	75.71	76.66	75.66	78.56	ND	ND	
P-10	88.56	Dry	80.06**	ND	77.46	Dry	79.16	74.06*	76.96	
P-11	87.16	76.01	ND	75.86	76.36	76.06	77.76	72.96*	78.06**	
P-15	89.21	ND	ND	ND	75.81	74.56	ND	71.26*	78.41**	
P-16	88.83	ND	ND	72.65	76.33	Dry	75.55	70.33*	79.69**	

Notes:

1. ND = No Data Reported
2. NGVD = National Geodetic Vertical Datum.
3. TOC = top of casing.
4. * = Minimum groundwater level for the reporting period
5. ** = Maximum groundwater level for the reporting period
6. GW = Groundwater



G:\PROJECT\09199033\0719903307\gwcontour.dwg Jul 17, 2003 - 3:09pm Layout Name: 1201 Bx: 22261.e

Figure E-6. Revised Groundwater Contour Map, Hardee County Solid Waste Disposal Facility
December 2001

Hardee County Hydrograph

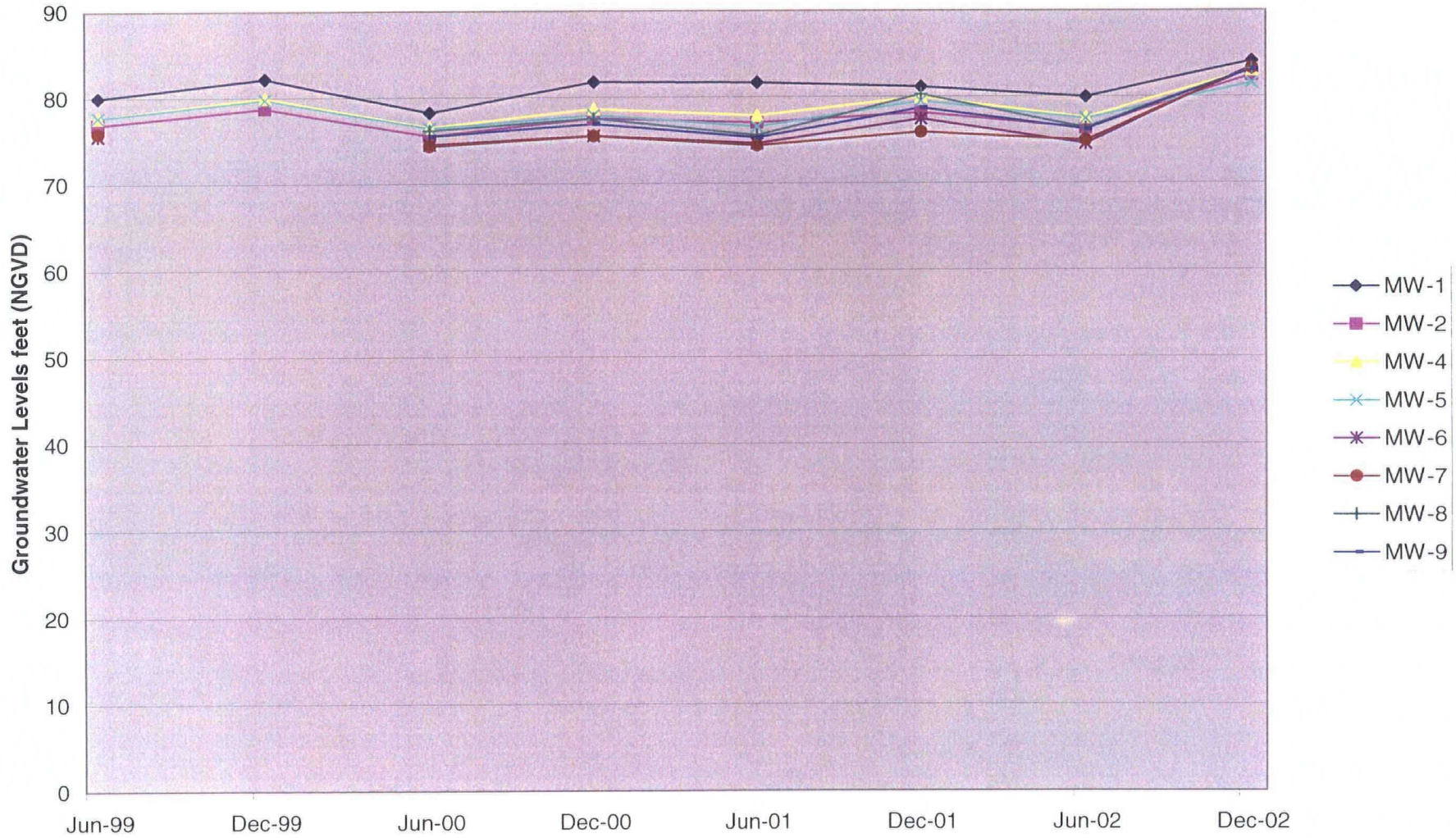


Figure E-9

ATTACHMENT B-7

**REVISED PAGE 4-3 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

On May 15, 1995 PBS&J conducted slug tests at MW-6, MW-7 and MW-3, located down gradient from the extent of waste. Based on these tests the average hydraulic conductivity of the surficial across the site is 1.4×10^{-4} ft/min (0.0230 feet per day). The hydraulic gradient (I) was based on groundwater flow maps generated for the period of record.

The groundwater flow velocity was calculated using the following aquifer values and Darcy's Law ($V=KI/\eta$),

V= groundwater velocity in feet per day

K= hydraulic conductivity of the surficial aquifer (0.0230-5.00 utilized for calculation)

I = gradient of the surficial aquifer (0.003-0.01 utilized for calculation)

η = effective porosity of the surficial aquifer (0.2 utilize or calculation)

Based on the aquifer characteristics discussed above, the groundwater flow velocity in the surficial aquifer ranges from 0.134 to 91 ft/year. The maximum flow velocity was utilized in evaluating the adequacy of the Hardee County groundwater monitoring plan however it should be noted that 91 feet per year is a liberal estimate of the groundwater flow velocity onsite and is not representative of the groundwater velocity at all locations across the site.

ATTACHMENT B-8

**REVISED PAGE 5-2 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

Under the current permit groundwater- monitoring wells MW-6 and MW-7 are measured for specific conductance and water levels semi-annually. These wells are located in the former spray field area. These wells should no longer be used for conductivity monitoring as the spray field is no longer in use and MW-8 and MW-9 adequately monitor the conductance of the groundwater down gradient from the landfill. These wells should be re-designated as piezometers and measured semi-annually for water levels only.

LOCATIONS OF SCREENS

Table 2-2 lists the construction characteristics of the monitoring wells currently located at the Hardee County landfill site along with the historical maximum and minimum groundwater levels at each well. ~~In monitoring wells MW-1, MW-2, MW-4, and MW-5, the maximum water level exceeds the screen interval for all wells, h~~—However several sampling events were performed when water levels intercepted the screened interval and did not indicate the presence of lighter constituents. Based on the above information, the screened intervals of the on-site wells are appropriately placed to intercept contaminants during sampling.

LEACHATE MONITORING

The compliance monitoring protocol for leachate monitoring specifies leachate sampling at Manhole 1, however, this location is occasionally dry and Manhole 9 is sampled as an alternative. The sample location is hydraulically down gradient from Manhole 1 and provides adequate leachate monitoring.

SURFACE WATER MONITORING

According to Chapter 62-701.510. (4), all surface water bodies that may be affected by contamination releases from the facility are currently included in the monitoring plan, SW-1. However, this site is frequently dry, and an alternative sampling location down stream may serve as a more appropriate sampling point. The alternative location should be located downstream from SW-1 and allow for representative sampling of the surface water body before exiting the landfill property.

MONITORING FREQUENCY

The monitoring locations are sampled and analyzed semi-annually in accordance with the permit. Based on maximum groundwater velocity calculations, groundwater movement between the semi-annual sampling events is 46.630.50—14 feet-. This rate provides adequate ~~sufficient~~ time to evaluate groundwater contamination at the edge of the zone of discharge if contamination is observed at the detection wells.

ATTACHMENT B-9

**REVISED PAGE 5-3 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

PARAMETER LISTS

After reviewing the laboratory parameters detected in the leachate, it appears the required analytical parameters for groundwater and leachate may need to be altered. ~~Currently the parameters listed in 40 CFR Part 258, Appendix I are required for both Leachate and groundwater. However, all parameters detected in the leachate samples are volatile organics and would be detected in EPA 8260 analysis. Therefore the required 40 CFR Part 258, Appendix I parameters for groundwater should be replaced with EPA 8260.~~ Currently, key indicator parameters for leachate are not included in the required parameters for groundwater or leachate. Sulfate, biological oxygen demand (BOD), chemical oxygen demand (COD), and Magnesium are typical parameters detected in leachate. Therefore, these parameters should be added to both the groundwater and leachate semi-annual sampling requirements.

ATTACHMENT B-10

**REVISED PAGE 6-1 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

SECTION 6

PROPOSED MODIFICATIONS/RECOMMENDATIONS TO THE MONITORING PROGRAM

The current monitoring program does not appear to be adequate to meet the requirements of Chapter 62-710, F.A.C. The following modifications to the plan are recommended.

LABORATORY QUALITY CONTROL AND REPORTING PROCEDURES

After reviewing the semi-annual groundwater analytical reports for the Hardee County Landfill the following recommendations are outlined below:

- Assure that sampling procedures are conducted in accordance with the FDEP's Standard Operating Procedure (SOP) FS 2200 (Ground Water Sampling)
- SOP FS 2200 Field turbidity should be <20 NTU's or less and dissolved oxygen should be <20% saturation during well purging. The use of quiescent sampling techniques will aid in achieving this criterion.
- The laboratory performing the analysis should provide Hardee County with a Quality Assurance Statement in the front of the semi-annual analytical report summarizing the quality assurance objectives and findings.
- The laboratory should achieve lower method detection limits for vanadium, 1,2-dibromoethane (EDB) and 1,2-dibromo-3-chloropropane (DBCP) to meet applicable groundwater standards.
- The quality control samples, field blanks and duplicates, should be analyzed for the identical parameters analyzed in the monitoring well samples.

GROUNDWATER PARAMETERS

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N

ATTACHMENT B-11

**REVISED PAGE 6-2 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
40 CFR part 258 Appendix I	40 CFR Part 258 Appendix I
Color and Sheen (observation)	Color and Sheen (observation)
	SulfateEPA-8260
	MagnesiumSulfate
	BODMagnesium
	CODBOD
	COD

LEACHATE PARAMETERS

Analytical parameters for leachate should include the following:

Parameters required in current permit	Revised leachate parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Bicarbonate	Bicarbonate
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
40 CFR part 258 Appendix I	40 CFR part 258 Appendix I
40 CFR part 258 Appendix II (annually)	40 CFR part 258 Appendix II (annually)
Color and Sheen (observation)	Color and Sheen (observation)
	Total Dissolved Solids (TDS)
	Sulfate
	Hardness

ATTACHMENT B-12

**REVISED PAGE 6-3 OF THE BIENNIAL GROUNDWATER
MONITORING EVALUATION**

SURFACE WATER PARAMETERS

Analytical parameters for surface water should include those parameters listed in Rule 62-701.510 (8)(b) F.A.C.

PROPOSED LEACHATE MONITORING LOCATION

Manhole 9 should replace Manhole 1 as the leachate sampling location. Manhole 9 is located down gradient from Manhole 1 and will allow for representative characterization of the leachate composition. The location of Manhole 9 is shown on Figure 6-1.

In addition, hardness should be added to the list of leachate laboratory parameters, as it will allow the leachate results to be compared with surface water standards. Hardness is required to calculate surface water standards for various metals.

PROPOSED SURFACE WATER MONITORING LOCATION

The current sampling location, SW-1, should be replaced with an alternative location, SW-2. SW-2 should be located in the creek, southwest of SW-1. This location will allow for monitoring of the surface water quality at the landfill property boundary. The proposed surface water location will be sampled for those parameters listed in Rule 62-701.510(8)(b), F.A.C. Surface water sampling will be conducted at SW-2 unless no surface water is present for the entire semi-annual period. The Hardee County Solid Waste Operation Manager will prepare a daily log (excluding Sundays) documenting the presence or absence of water in the creek. If water is observed the Landfill Manger will be notified and will coordinate with the laboratory contractor to collect a surface water sample. Per Rule 62-710.510 F.A.C., the surface water monitoring location ~~will should~~ be marked and the position determined by a registered Florida Land Surveyor. The proposed location of SW-2 is shown on Figure 6-1.

PROPOSED MONITORING WELLS

An additional detection well, MW-10, should be added to the monitoring plan. It will be located less than 500 feet south east of MW-9, in order to comply with Chapter 62-710,510 F.A.C., well spacing should be no greater than 500 feet apart. This well will also serve as a replacement water level data point for the destroyed piezometer P-6. Figure 6-2 lists the proposed well location. Table 6-1 lists the approximate construction characteristics. The total depth and screened interval are based on the specifications and groundwater level fluctuation measured in MW-9.

ATTACHMENT B-13

**REVISED PAGE 2 OF THE WATER QUALITY & LEACHATE
MONITORING PLAN**

In addition, the following Piezometers will be used to monitor groundwater outside of the waste disposal area and leachate levels within the waste disposal area;

Leachate level monitoring within the cell are accomplished using the piezometers (Piezometers P-1,P-2, P-9, P-10, P-15, and P-16) and outside groundwater water levels monitored by piezometers (P-3, P-4, P-5, P-7, P-8, P-11, P-12, P-13, P-14) and monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10. (P-6 was abandoned during construction of the leachate storage tanks). The water levels within the landfill cell should be lower then the outside water levels to promote inward gradient pressure against the barrier geomembrane surrounding the waste materials.

Surface Water

The following surface water monitoring point will be used to monitor the quality of the surface water runoff from the facility prior to leaving the property (refer to 62-701.510(4));

The current sampling location, SW-1, should be replaced with an alternative location, SW-2. SW-2 should be located in the creek, southwest of SW-1. This location will allow for monitoring of the surface water quality at the landfill property boundary. Surface water sampling shall be conducted at SW-2 unless no surface water is present for the entire semi-annual period. Hardee County Solid Waste personnel will prepare a daily log (excluding Sundays) in order to document the absence of water in the creek at the downstream property boundary The proposed location of SW-2 is shown on Figure 1.

Leachate

The following leachate monitoring collection point is used to monitor the leachate prior to being pumped into the leachate storage tanks (refer to 62-701.510(5));

Manhole 9 should replace Manhole 1 as the leachate sampling location. Manhole 9 is located down gradient from Manhole 1 and will allow for representative characterization of the leachate composition prior to entering the pump station (Manhole No. 8). The location of Manhole 9 is shown on Figure 1.

In addition, hardness should be added to the list of leachate laboratory parameters, as it will allow the leachate results to be compared with surface water standards. Hardness is required to calculate surface water standards for various metals.

ATTACHMENT B-14

**REVISED PAGE 3 OF THE WATER QUALITY & LEACHATE
MONITORING PLAN**

3.0 WATER QUALITY AND LEACHATE MONITORING PARAMETERS

Groundwater Parameters

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
— 40 CFR part 258 Appendix I	EPA 8260 40 CFR part 258 Appendix I
Color and Sheen (observation)	Color and Sheen (observation)
	Sulfate
	Magnesium
	BOD
	COD

Surface Water Parameters

- Field Parameters
 - Specific conductivity
 - pH
 - Dissolved oxygen
 - Turbidity
 - Temperature
 - Colors and sheens
- Lab Parameters
 - Zinc

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ENVIRONMENTAL PROTECTION

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SOUTHWEST DISTRICT
TAMPA

3.0 WATER QUALITY AND LEACHATE MONITORING PARAMETERS

Groundwater Parameters

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
— 40 CFR part 258 Appendix I	EPA-826040 CFR part 258 Appendix
Color and Sheen (observation)	Color and Sheen (observation)
	Sulfate
	Magnesium
	BOD
	COD

Surface Water Parameters

- Field Parameters
 - Specific conductivity
 - pH
 - Dissolved oxygen
 - Turbidity
 - Temperature
 - Colors and sheens

- Lab Parameters
 - Zinc

ATTACHMENT B-15

**REVISED PAGE 4 OF THE WATER QUALITY & LEACHATE
MONITORING PLAN**

- Unionized ammonia
- Total hardness
- Biochemical oxygen demand (BOD₅)
- Copper
- Iron
- Mercury
- Nitrate
- Total dissolved solids (TDS)
- Total organic carbon (TOC)
- Fecal coliforms
- Total phosphates~~orous~~
- Chlorophyll A
- Total nitrogen
- Chemical oxygen demand (COD)
- Total suspended solids (TSS)
- 40 CFR Part 258, Appendix I

Leachate Parameters

Analytical parameters for leachate should include the following:

Parameters required in current permit	Revised leachate parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Bicarbonate	Bicarbonate
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
40 CFR part 258 Appendix I	40 CFR part 258 Appendix I
40 CFR part 258 Appendix II (annually)	40 CFR part 258 Appendix II (annually)
Color and Sheen (observation)	Color and Sheen (observation)
	Total Dissolved Solids (TDS)
	Sulfate
	Hardness

ATTACHMENT B-16

**REVISED PAGE 5 OF THE WATER QUALITY & LEACHATE
MONITORING PLAN**

4.0 SAMPLING METHODS

All sampling procedures should be conducted in accordance with the FDEP Departments Standard Operating Procedure (SOP) FS 22000 (Ground Water Sampling).

5.0 MONITORING FREQUENCY

After the initial round of sampling, all indicator parameters for monitoring wells and leachate and surface water monitoring locations shall be sampled and analyzed on a semi-annual basis. In addition, leachate samples shall be analyzed for those parameters listed in 40 CFR Part 258, Appendix II, on an annual basis.

6.0 WATER QUALITY MONITORING REPORTING

The landfill owner or operator shall report all water quality monitoring results (to include groundwater, surface water, and leachate samples) to the Florida Department of Environmental Protection (FDEP) on a semi-annual basis. The operator of the landfill shall notify the FDEP at least 14 days before the sampling is scheduled to occur so that the FDEP may collect split samples, if desired.

Reporting periods shall be established in the facility permit. The report shall include at least the following as a minimum:

1. The facility name and identification number, sample collection dates, and analysis dates;
2. All analytical results, including all peaks even if below maximum contamination levels;
3. Identification number and designation of all surface water and ground water monitoring points;
4. Applicable water quality standards;
5. Quality assurance, quality control notations;
6. Method detection limits;
7. STORET code numbers for all parameters;

ATTACHMENT B-17
REVISED SECTION N.4

SECTION N

SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520 F.A.C.)

N.1 PROCEDURES FOR MANAGING MOTOR VEHICLE DISPOSAL

The Hardee County Landfill does not accept motor vehicles, therefore this section does not apply and the application has been marked "Not Applicable".

N.2 PROCEDURES FOR LANDFILLING SHREDDED WASTE

The Hardee County Landfill does not landfill shredded waste, therefore, this section does not apply and the application has been marked "Not Applicable".

N.3 PROCEDURES FOR ASBESTOS WASTE DISPOSAL

Asbestos Containing Materials (ACM) are accepted at the Hardee County Landfill under certain provision outlined by 40 CFR Part 61 (as referenced in 62-701.520(4)(a), FAC) and the Hardee County Solid Waste Department. The County has notified all known potential asbestos disposers of the required procedures, which must be followed by any person desiring to dispose of ACM. Accepted asbestos material is disposed of using the following procedures (these procedures are also outlined in Appendix B of Attachment L-1):

- Excavate a hole three feet in depth and adequate diameter to meet the estimated quantity to be received.
- Cover immediately with one foot of soil and compact with dozer, adding more cover material with each pass.
- Attach a site map with location and depth of each disposal site and attached in a file with the Waste Shipment Record and record weight ticket.

N.4 PROCEDURES FOR CONTAMINATED SOIL DISPOSAL

The County accepts contaminated soils on the condition that they are not hazardous. It is a requirement that all incoming contaminated soils be TCLP tested first before being accepted at this facility for disposal. Depending on the known or suspected contaminant, additional analyses may be required. Records of tests and analyses are kept on file at the landfill facility. Accepted contaminated soils are disposed of in the currently active disposal cell. Disposal of contaminated soil is accomplished by adding the contaminated soil to the daily cover used for the solid waste only within the lined and bermed working face. The location of contaminated soil can be determined based on the contaminated soil's date of arrival and the filling sequence at the landfill.

If the TCLP testing shows the soil cannot be accepted at the landfill the hauler will be notified. A front-end loader will place the soil in a barrel at the Household Hazardous Waste Collection Center. Hardee County will contact the person/entity who dumped the load and request removal within 48 hours. If the 48 hours expire the County will contact an independent waste hauler for proper disposal of the contaminated soil at a permitted hazardous waste management facility.

N.5 BIOLOGICAL WASTES

Biological waste includes sludges and medical waste. Sludges are not accepted at the landfill for disposal. Medical waste is not accepted at the landfill for disposal.

ATTACHMENT B-18
REVISED PERMIT APPLICATION FORM

N. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
		✓		1. Describe procedures for managing motor vehicles; (62-701.520(1), FAC)
		✓		2. Describe procedures for landfilling shredded waste; (62-701.520(2), FAC)
✓	Section N.3			3. Describe procedures for asbestos waste disposal; (62-701.520(3), FAC)
✓	Section N.4			4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
		✓		5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

O. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530, FAC)

				1. Provide the design for a gas management systems that will (62-701.530(1), FAC):
✓	Section O			a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
✓	Section O			b. Be designed for site-specific conditions;
✓	Section O			c. Be designed to reduce gas pressure in the interior of the landfill;
✓	Section O			d. Be designed to not interfere with the liner, leachate control system or final cover.
✓	Section O			2. Provide documentation that will describe locations, construction details and procedures for monitoring gas at ambient monitoring points and with soil monitoring probes; (62-701.530(2), FAC):
✓	Section O			3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):
		✓		4. Landfill gas recovery facilities; (62-701.530(5), FAC):
		✓		a. Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
		✓		b. Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
		✓		c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART O CONTINUED
		✓		d. Description of procedures for condensate sampling, analyzing and data reporting provided;

ATTACHMENT B-19
REVISED SECTION O.3

SECTION O

GAS MANAGEMENT SYSTEM REQUIREMENTS

O.1 SYSTEM DESIGN

Landfill gas that is generated is allowed to vent to atmosphere. When the final cover is constructed, a passive vent system will be installed. The vents will be designed to prevent concentrations of combustible gases from exceeding 25% of the lower explosive limit (LEL) in structures and 100% of the LEL at the property boundary.

O.2 GAS MONITORING

There are eleven gas monitoring probes located along the perimeter of the landfill, as shown on Sheet 3 of the enclosed permit drawings. These monitoring probes are sampled on a quarterly basis, with the results reported to the FDEP. In addition, the County also monitors the following structures for landfill gas:

- Maintenance Building
- Materials Recovery Facility
- Scalehouse/Administrative Offices
- Kennel

O.3 GAS REMEDIATION PLAN

~~This section is not applicable. As per Rule 62-701.530(3)(a), F.A.C., a gas remediation plan should be instituted if~~

- The monitoring results from the probes demonstrate that combustible gas concentrations exceed the lower explosive limit (LEL) of 5% methane.
- The on-site structures contain gas concentrations that exceed 25% of the LEL, which is equivalent to 1.25% methane.

Should the LEL be exceeded, the landfill operator will immediately take all necessary steps to ensure protection of human health and notify FDEP. With 7 days of detection, a gas remediation plan shall be submitted to the Department for approval. The plan will describe the nature and extent of the problem and the proposed remedy, which will be taken within 60 days of the detection.

Rule 62-701.530(3)(b), F.A.C. regards objectionable odors; should gas concentrations produce objectionable odor beyond the landfill property, an odor remediation plan shall be put in place.

The landfill operator shall implement a routine odor monitoring program to determine the timing and extend of any off-site odors. If this monitoring program confirms the existence of objectionable odors, an odor remediation plan shall be submitted to FDEP for approval. The plan will describe the nature and extent of the problem and the proposed remedy, which will be taken within 30 days of the approval.

O.4 LANDFILL GAS RECOVERY FACILITIES

This section is not applicable.

APPENDIX C

RESPONSES TO STEVEN G. MORGAN'S LETTER TO JANICE WILLIAMSON DATED JUNE 17, 2003.

Closing Costs

Stormwater Control System:

The cost estimates for the stormwater control system provided in this section only appear to address construction of the proposed stormwater control system up to the elevation 110 ft. NGVD. of the landfill. Please provide cost estimates and supporting calculation for the remainder of the proposed stormwater management system and revise the cost estimates in the section accordingly.

Response: The drawings submitted show stormwater drop inlets located on the northeast, northwest, and southeast corners of the landfill. The northeast and northwest drop inlets have drop structures at elevation 135 and 110. The southeast drop inlet has a drop structure located at elevation 110.

The drawings also reflect a series of benches and swales that divert stormwater to the drop inlets located at elevation 110. The financial assurance forms and calculations located in Attachment C-1 and C-2 reflect these changes.

Professional Services:

The assumption that it will require only two work months to complete closure construction appears to be optimistic. Please provide specific information and calculations of actual time to complete closure from a similar landfill closure project and the professional services hours spent on that project in support this assumption and revise this section accordingly.

Response: Changes have been made to this section. It is estimated that the closure construction will be completed in six months. The financial assurance forms and calculations located in Attachment C-1 and C-2 reflect these changes.

Long-term Care Costs

Gas Monitoring:

The cost estimates in this section were based on quarterly monitoring of gas probes GP-1 through GP-9. The current gas monitoring program consists of gas probes GP-1 through GP-11. Please explain this discrepancy and revise the cost estimates in this section accordingly.

Response: Under the existing solid waste permit (Permit Number 38414-002-SO), Specific Condition 20 states that the gas monitoring probes GP-1 through GP-9 and the following structures shall be monitored:

- Maintenance Building
- Materials Recovery Facility
- Scalehouse/Administrative Offices
- Animal Control Kennel

According to Rule, 62-701.530(2)(b), F.A.C., monitoring probes should be placed along the property boundary of the facility; GP-10 and GP-11 are located on the interior of the property. Probes GP-10 and GP-11 will also be added to the monitoring plan in order to obtain additional information on gas migration. The addition of two probes will not change the cost of the gas-monitoring fee for long-term care of the landfill. The financial assurance forms and calculations reflect these changes. The supporting calculations are located in Attachment C-2.

Leachate Collection/Treatment Systems Maintenance – Maintenance:

Please provide justification for the assumption that no maintenance of the leachate collection pipes, sumps/traps, lift station, or tanks will be required during the long-term care period or revise this section to include annual costs for leachate system maintenance.

Response: Changes have been made to this section. The financial assurance forms and calculations located in Attachment C-1 and C-2 reflect these changes.

Leachate Collection/Treatment Systems Maintenance – Disposal:

In accordance with Rule 62-701.630(3)(a), closure and long-term care costs estimates are based on "... the time period in the landfill operations when the extent and manner of its operation making closing most expensive." In the case of leachate generation rates during long-term care, the time of maximum generation rate is immediately upon completion of closure activities. A reasonable estimate of this generation rate corresponds to the actual per acre leachate generation rate for the previous year calculated for the total acreage to be closed. During the facility's long-term care period, as the average annual leachate generation rate decreases, long-term care costs for leachate disposal can be reduced accordingly. Please revise the leachate quantities and costs provided for long-term care accordingly.

Response: The leachate generation for the first year after capping the landfill is assumed to be the same rate at the present. As time progresses, the leachate generation rate will decrease. SCS has calculated the leachate disposal rate according to the present generation rate of 7,575,540 gallons per year. The financial assurance forms and calculations located in Attachment C-1 and C-2 reflect these changes.

ATTACHMENT C-1
REVISED FINANCIAL ASSURANCE FORM

V. RECALCULATE ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing **most expensive**.

**** Third Party Estimate / Quote must be provided for each item**
**** Costs must be for a third party providing all material and labor**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells (Do not include wells already in existence.)				
	EA	0.00	0.00	\$0.00
Subtotal Monitoring Wells:				\$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY	0.00	0.00	\$0.00
Placement and Spreading	CY	22,833	6.50	\$148,414.50
Compaction	CY	0.00	0.00	\$0.00
Off Site Material	CY	0.00	0.00	\$0.00
Delivery	CY	0.00	0.00	\$0.00
Subtotal Slope and Fill:				\$148,414.50
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY	0.00	0.00	\$0.00
Synthetics - 40 mil	SY	75,348	3.21	\$241,867.08
Synthetics - GCL	SY	0.00	0.00	\$0.00
Synthetics - Geonet	SY	75,348	4.13	\$311,187.24
Biplanar Geocomposite				
Synthetics - Other	SY	0.00	0.00	\$0.00
Subtotal Barrier Layer Cover:				\$553,054.32
4. Top Soil Cover:				
Off-Site Material	CY	45,666	6.50	\$296,829.00
Delivery	CY	0.00	0.00	\$0.00
Spread	CY	0.00	0.00	\$0.00
Subtotal Top Soil Cover				\$296,829.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
5. Vegetative Layer				
Sodding	SY	<u>68,499</u>	<u>1.21</u>	<u>\$82,883.79</u>
Hydroseeding	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Fertilizer	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Mulch	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Other	SY	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Vegetative Layer:				<u>\$82,883.79</u>
6. Stormwater Control System:				
Earthwork	CY	<u>1,350</u>	<u>4.50</u>	<u>\$6,075.00</u>
Erosion Control GFFR	SF	<u>4,300</u>	<u>3.41</u>	<u>\$14,663.00</u>
Piping	LS	<u>1.00</u>	<u>11,950.00</u>	<u>\$11,950.00</u>
Ditches	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Energy Dissipator FDOT Index No. 261	LS	<u>3.00</u>	<u>650.00</u>	<u>\$1,950.00</u>
Drop Inlets FDOT Index No. 232	LS	<u>5</u>	<u>1,758.00</u>	<u>\$8,790.00</u>
Other	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Stormwater Controls:				<u>\$43,428.00</u>
7. Gas Controls: Passive				
Wells	VF	<u>360</u>	<u>72.00</u>	<u>\$25,920.00</u>
Pipe and Fittings	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Monitoring Probes	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
NSPS/Title V requiremei	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Passive Gas Control:				<u>\$25,920.00</u>

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Sump	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flare Assembly	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flame Arrestor	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Mist Eliminator	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flow Meter	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Blowers	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Collection System	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Other (describe)		<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Active Gas Extraction:				<u>\$0.00</u>
9. Security System				
Fencing	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Gate(s)	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Sign(s)	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Security System:				<u>\$0.00</u>
10. Engineering:				
Closure Plan report	LS	<u>1.00</u>	<u>37,739.00</u>	<u>\$37,739.00</u>
Certified Engineer	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
NSPS/Title V Air Permit	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Final Survey	LS	<u>1.00</u>	<u>7,430.00</u>	<u>\$7,430.00</u>
Certification of Closure	LS	<u>1.00</u>	<u>13,377.00</u>	<u>\$13,377.00</u>
Other (detail)		<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Engineering:				<u>\$58,546.00</u>

11. Professional Services

	Contract Management		Quality Assurance		TOTAL
	Hours	LS	Hours	LS	
P.E. Supervisor	120	11,760.00	0	0.00	\$11,760.00
On-Site Engineer	0	0.00	0	0.00	\$0.00
Office Engineer	160	11,200.00	0	0.00	\$11,200.00
On-Site Technician	0	0.00	320	14,400.00	\$14,400.00
Administrative	32	1,280.00	0	0.00	\$1,280.00
Reimbursables	0	6,514.00	0	0.00	\$6,514.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing/Labor	LS	1	41,750.00	\$41,750.00

Subtotal Professional Services: \$86,904.00

Subtotal of 1-11 Above: \$1,295,979.61

12. Contingency % of Total 15%

Closing Cost Subtotal: \$1,490,376.55

13. Site Specific Costs (explain)

<u>Mobilization</u>	<u>\$20,000.00</u>
<u>Waste Tire Facility</u>	<u>\$0.00</u>
<u>Materials Recovery Facility</u>	<u>\$0.00</u>
<u>Special Wastes</u>	<u>\$0.00</u>
<u>Leachate Management System Modification</u>	<u>\$0.00</u>
<u>Other</u>	<u>\$0.00</u>
<u> </u>	<u>\$0.00</u>

Subtotal Site Specific Costs: \$20,000.00

TOTAL CLOSING COSTS: \$1,510,376.55

VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

_____ 5 years _____ 20 years X 30 years _____ Other

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

**** Third Party Estimate / Quote must be provided for each item**
**** Costs must be for a third party providing all material and labor**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	Sampling Frequency (events/yr.)	Number of Wells	\$/Well/Event	\$ / Year
1. Groundwater Monitoring (62-701.510(6), and (8)(a))				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Semi-Annual	2	<u>6</u>	<u>425.00</u>	<u>\$5,100.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Groundwater Monitoring:				<u>\$5,100.00</u>
2. Surface Water Monitoring (62-701.510(4), and (8)(b))				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Semi-Annual	2	<u>1</u>	<u>605.00</u>	<u>\$1,210.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Surface Water Monitoring:				<u>\$1,210.00</u>
3. Gas Monitoring				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>1</u>	<u>750.00</u>	<u>\$3,000.00</u>
Semi-Annual	2	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Gas Monitoring:				<u>\$3,000.00</u>

DESCRIPTION	Sampling Frequency (events/yr.)	Number of Wells	\$/Well/Event	\$ / Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8)(c))				
Monthly	12	0	0.00	\$0.00
Quarterly	4	0	0.00	\$0.00
Semi-Annual	2	1	445.00	\$890.00
Annual	1	1	1,275.00	\$1,275.00
Other		0	0.00	\$0.00
Subtotal Leachate Monitoring:				\$2,165.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
5. Leachate Collection/Treatment Systems Maintenance				
Maintenance				
Collection Pipes	LF	1	180.00	\$180.00
Sumps, Traps	EA	0	0.00	\$0.00
Lift Stations	EA	0	0.00	\$0.00
Cleaning	LS	0.2	4,450.00	\$890.00
Tanks	EA	0	0.00	\$0.00
Impoundments				
Liner Repair	SY	0	0.00	\$0.00
Sludge Removal	CY	0	0.00	\$0.00
Aeration Systems	CY	0	0.00	\$0.00
Floating Aerators	EA	0	0.00	\$0.00
Spray Aerators	EA	0	0.00	\$0.00
Disposal				
Off-site (Include Transportation and Disposal)	LS	1	64,596.00	\$64,596.00

6. Leachate Collection/Treatment Systems Operation

Operation		Hours	\$/Hour	Total
P.E. Supervisor	HR	0	0.00	\$0.00
On-Site Engineer	HR	0	0.00	\$0.00
Office Engineer	HR	0	0.00	\$0.00
On-site Technician	LS	0	0.00	\$0.00
Materials	LS	0	0.00	\$0.00
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				\$65,666.00

7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LS	1	180.00	\$180.00
Replacement	EA	0.2	962.00	\$192.40
Abandonment	EA	0	0.00	\$0.00
Subtotal Groundwater Monitoring Well Maintenance:				\$372.40

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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8. Gas System Maintenance

Piping, Vents	LF	0	0.00	\$0.00
Blowers	EA	0	0.00	\$0.00
Flaring Units	EA	0	0.00	\$0.00
Meters, Valves	EA	0	0.00	\$0.00
Compressors	EA	0	0.00	\$0.00
Flame Arrestors	EA	0	0.00	\$0.00
Operation	LS	1	460.00	\$460.00
Subtotal Gas System:				\$460.00

9. Landscape

Mowing	LS	1.0	12,150.00	\$12,150.00
Fertilizer	AC	0	0.00	\$0.00
Subtotal Landscape Maintenance:				\$12,150.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY	<u>1210.00</u>	<u>1.18</u>	<u>\$1,427.80</u>
Regrading	AC	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Liner Repair	SY	<u>56</u>	<u>3.61</u>	<u>\$202.16</u>
Clay	CY	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Erosion Control and Cover Maintenance:				<u>\$1,629.96</u>
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Storm Water System Maintenance:				<u>\$0.00</u>
12. Security System Maintenance				
Fences	LF	<u>50</u>	<u>21.53</u>	<u>\$1,076.50</u>
Gate(s)	EA	<u>0.2</u>	<u>1505.00</u>	<u>\$301.00</u>
Sign(s)	EA	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Security System:				<u>\$1,377.50</u>
13. Utilities	LS	<u>1</u>	<u>500.00</u>	<u>\$500.00</u>
14. Administrative				
P.E. Supervisor	LS	<u>1</u>	<u>1568.00</u>	<u>\$1,568.00</u>
On-Site Engineer	HR	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Office Engineer	HR	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
On-site Technician	LS	<u>1</u>	<u>8640.00</u>	<u>\$8,640.00</u>
Other (explain)		<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Administrative:				<u>\$10,208.00</u>
15. Contingency	% of Total	\$103,838.86	<u>10%</u>	<u>\$10,383.89</u>
Subtotal Contingency:				<u>\$10,383.89</u>

16. Site Specific Costs (explain)

UNIT COST

<hr/>	<u>LS</u>	<u>\$0.00</u>
<hr/>	<u>LS</u>	<u>\$0.00</u>
<hr/>	<u>LS</u>	<u>\$0.00</u>

ANNUAL LONG-TERM CARE COST (\$/Year): \$114,222.75

NUMBER OF YEARS OF LONG-TERM CARE 30

TOTAL LONG-TERM CARE COST (\$): \$3,426,682.38

ATTACHMENT C-2

REVISED FINANCIAL ASSURANCE CALCULATIONS

CLIENT HARDEE COUNTY	PROJECT Permit Renewal	JOB NO. 00199033.08
SUBJECT Financial Assurance	BY LEK	DATE 3/20/03
Closing Costs/Long-Term Care	CHECKED ECC	DATE 4/14/03

TASK Revised 9/28/03
AMR 9/29/03
Calculate financial assurance for closure and long-term care for Hardee County Regional Landfill

REFERENCES

1. 2008 RS Means Building Construction Cost Data
2. January - December 2002 FOOT Construction Contract History
3. SCS Drawings, Sheets 1 through 7
Permit Modification
October 2002.
4. Hardee County Permit Number 3844-002-50

ASSUME

Update previous costs at a 3% inflation rate per year.

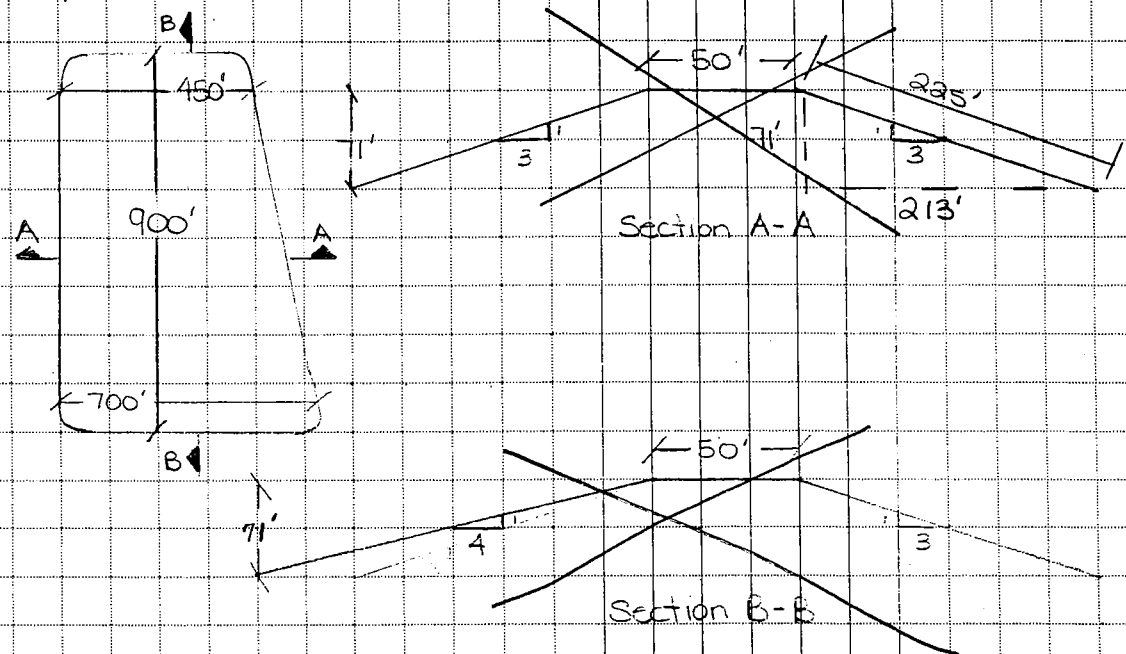
CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Financial Assurance	BY LEK	DATE 3/20/03
Closing Costs/Long-Term Care	CHECKED ECC	DATE 4/16/03

Area Calculations
 Landfill footprint = 12.5 acres
 = 544,500 sf

Revised 9/28/03
 AMS 9/29/03

See Sheet III for revised
 Landfill Surface Area calcs

North, East, & West slope is 3:1
~~South slope is 4:1~~



~~Width of 3:1 Slope = $\sqrt{(71')^2 + (3 \times 71')^2} = 225 \text{ LF}$~~

~~Width of 4:1 Slope = $\sqrt{(71')^2 + (4 \times 71')^2} = 293 \text{ LF}$~~

~~Total length of 3:1 slope = 2226 LF (via AutoCAD)~~

~~Total Length of 4:1 slope = 700 LF (via AutoCAD)~~

Surface Area = ~~$225' \times 2226' + 293' \times 700' + 22,500 \text{ sf}$~~ via AutoCAD

~~= 727,570 sf~~

~~= 16.7 acres~~

Area = 12,510 sf

Next Sheet III

Number of triangles: 7591
Mean elevation: 116.40
Minimum triangle area: 0.00
Maximum triangle area: 2293.41
2D surface area: 597276.84
3D surface area: 616487.22

Hardee County Financial Assurance

Closing Costs/Long-Term Care

LEK

9/28/03

Surface Area of Closed Landfill = 616,487 sf

Surface Area obtained by AutoCAD.

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/20/03
	CHECKED ECC	DATE 4/17/03

1. Monitoring Wells

Revised 9/28/03

AMR 9/24/03

No new wells are proposed; perimeter monitoring wells exist

2. Slope & Fill

Geomembrane bedding - use 12"

$$\text{Volume of bedding} = \frac{727,570 \text{ sf}}{616,487 \text{ sf}} \times 12" \times \frac{1 \text{ ft}}{12"} \times \frac{1 \text{ cy}}{27 \text{ cf}} = \frac{20,947 \text{ cy}}{22,833 \text{ cy}}$$

Bedding Quantity = 20,950 cy 22,833 cy
--

Cost

Hardee County Sub Contractor Quote

\$4.50/cy

Note: Cost includes mat'l & hauling to Site

Estimate a cost of \$2/cy to haul mat'l around site and compact

Bedding Cost = \$6.50/cy

HARDEE COUNTY PURCHASING DEPT

205 HANCHEY ROAD
 WAUCHULA, FL 33873
 863/773-5014 Fax 863/773-0322

PURCHASE ORDER: 44681

Page: 1 of 1

***** VENDOR *****
 T & C FILL DIRT
 456 CYPRESS STREET
 WAUCHULA FL 33873

***** DELIVER TO *****
 HARDEE COUNTY
 SOLID WASTE & RECYCLE
 685 AIRPORT ROAD
 WAUCHULA, FL. 33873

Ordered	Due	Ship Via	FOB	Terms	Customer#
01/02/03	01/02/03			Upon Receipt	

Requisition No.	Vendor No.	Vendor Phone	Vendor Fax
50320	10186-1	863/773-9446	863/773-3599

No	Quantity	U/M	Description	Unit Price	Extended	G/L Account
1	1,000.00	YD	FILL DIRT	4.5000	4,500.00	104-534-034-0
			1,000 yd ³ @ 4.50 per yd ³	** TOTAL **	4,500.00	

VENDOR INSTRUCTIONS:

- Mail Invoices to: Hardee County Clerk to BOCC
Accounting Dept
412 W Orange St Rm A-205
Wauchula, Fl 33873
- Invoices and Packages must bear the P.O. No. Above.
- Purchases may not exceed the total amount of this order without prior approval by the Purchasing Dept. Acceptance of this order includes acceptance of all terms, prices, delivery instructions, specifications and conditions.
- State Tax Exempt#: 25-02689-53C EIN: 59-6000632
- If you have questions, please call 863/773-5014

SPECIAL INSTRUCTIONS:

CONFIRMING ORDER W/TIM, DO NOT DUPLICATE.



Dmc Newgent

Next Sheet 2A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs		BY LEK
		DATE 3/20/03
		CHECKED ECC
		DATE 4/16/03

3. Cover Material

Revised 9/28/03

AMB 9/29/03

Synthetic Cover - 40 mil liner

Add 10% for waste

$$\text{Liner Area} = \frac{727,570 \text{ sf}}{16,487 \text{ sf}} \times 1.10 \times \frac{\text{sy}}{9 \text{ sf}} = \frac{88,925 \text{ sy}}{75,348 \text{ sy}}$$

$$\boxed{40 \text{ mil Liner Quantity} = \frac{88,925 \text{ sy}}{75,348 \text{ sy}}}$$

Cost

GSE Quote 2002

Installed Cost 40-mil VFPE liner = \$0.55/sf

Update to 2003 cost @ 2%/yr

$$2003 \text{ Cost} = \frac{\$0.35}{\text{sf}} \times 1.02 \times \frac{9 \text{ sf}}{\text{sy}} = \$3.21/\text{sy}$$

$$\boxed{40\text{-mil Liner Cost} = \$3.21/\text{sy}}$$

Biplanar Geocomposite for Drainage

Add 10% for waste

$$\text{Composite Area} = 16,487 \text{ sf} \times 1.10 \times \frac{\text{sy}}{9 \text{ sf}} = 75,348 \text{ sy}$$

GSE Quote 2002

Biplanar

Installed Geocomposite = \$0.45/sf

$$2003 \text{ Cost} = \frac{\$0.45}{\text{sf}} \times 1.02 \times \frac{9 \text{ sf}}{\text{sy}} = \$4.13/\text{sy}$$

Next Sheet AB

Sheet 2B of
 GSE 2002
 Installed costs
 (GSE, TX)

Please provide installed budget cost estimates for the following products.

Geomembrane			
Thickness (mil)	Texture	Density	Cost per square foot (dollars)
40	Smooth	VFPE	\$0.35
40	Textured	VFPE	\$0.38
60	Smooth	HDPE	\$0.42
60	Textured	HDPE	\$0.45
60	Smooth, white	HDPE	\$0.45
60	Textured, white	HDPE	\$0.48
60	Smooth, conductive	HDPE	\$0.47
60	Textured, conductive	HDPE	\$0.50
80	Smooth	HDPE	\$0.50
80	Textured	HDPE	\$0.55
100	Smooth	HDPE	\$.60
Biplanar Geonet			
# of Textiles			Cost per square foot (dollars)
0			\$.29
1			\$.37
2			\$.45
Triplanar Geonet			
# of Textiles			Cost per square foot (dollars)
0			\$0.68
1			\$0.75
2			\$0.81

Next Sheet 3A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

4. Top Soil Cover

Revised 9/28/03

AMB 9/29/03

Protective soil cover - use 24"

$$\text{Volume of cover soil} = \frac{616,487 \text{ sf} \times 24" \times 1 \text{ ft}}{12" \times 27 \text{ cf}} = \frac{53,895 \text{ cy}}{45,666 \text{ cy}}$$

$$\text{Cover Soil Quantity} = \frac{53,895 \text{ cy}}{45,666 \text{ cy}}$$

Cost

Hardee Quote (See No. 2)

$$\text{Cover Soil Cost} = \$6.50/\text{cy}$$

5. Vegetative Layer

Place sod

$$\text{Sod Area} = \frac{616,487 \text{ sf} \times 1 \text{ sy}}{9 \text{ sf}} = \frac{68,499 \text{ sy}}{68,499 \text{ sy}}$$

$$\text{Sod Quantity} = \frac{68,499 \text{ sy}}{68,499 \text{ sy}}$$

Cost

FDOT Contract History 2001

Item 575 - 1-1 Bahia Sod \$1.16/sy

Update to 2003 Cost @ 2% / yr

$$2003 \text{ Cost} = \$1.16/\text{sy} \times 1.04 = \$1.21/\text{sy}$$

$$\text{Sod Cost} = \$1.21/\text{sy}$$

Next Sheet 3B

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 ENGINEERING SUPPORT SERVICES - AKBAR.3.33
 PAYITEM AVERAGE UNIT COST REPORT FROM 01JAN00 TO PRESENT

PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUANTITY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
573	3	1	0.2900	1,056.00	306.24	LB FERTILIZER (FOR HYDRO-SEEDING)
573	4	1	0.2900	10,564.00	3,063.56	LB MULCH FIBER (FOR HYDRO-SEEDING)
575	1	102	1.3261	4,010,666.00	5,318,498.67	SY SODDING
575	1	1	1.1730	1,988,631.80	2,332,602.70	SY SODDING (BAHIA)
575	1	2	2.6227	10,526.00	27,606.42	SY SODDING (CENTIPEDE)
575	1	3	1.2065	653,884.00	788,933.26	SY SODDING (ARGENTINE BAHIA)
575	1	4	2.7425	122,247.94	335,262.11	SY SODDING (SAINT AUGUSTINE)
575	1	5	1.6918	2,487.00	4,207.50	SY SODDING (OVERLAPPED)
575	1	6	1.6395	1,080,548.00	1,771,588.41	SY SODDING (BERMUDA)
577	70	30	0.9060	1,100,805.00	997,336.50	SY SHOULDER REWORK
580173		11	3.6711	188,589.50	692,329.85	SY BED PREPARATION & MULCHING
580301	1	24	11.5996	9,917.00	115,033.56	EA STAKING & GUYING (TREES)
580301	2	16	21.8122	4,629.00	100,968.79	EA STAKING & GUYING (PALMS)
580326	1	4	2.5248	5,019.50	12,673.02	SY MULCH PINE BARK
580326	2	2	1.4478	11,530.00	16,692.70	SY MULCH PINE NEEDLE
580326	3	2	3.5263	3,843.50	13,553.49	SY MULCH SHREDDED CYPRUS BARK
580326	4	3	2.3327	29,544.00	68,917.66	SY MULCH WOOD CHIP
580327	1	13	329.6467	516.00	170,097.71	EA TREE RELOCATION (PALM)
580327	2	7	776.5458	80.00	62,123.66	EA SMALL TREE, SHRUBS, GROUND COVER RELOCATION
580327	4	1	15.4500	132.00	2,039.40	EA PLANTING ONLY PLANT MATERIAL PROVIDED BY OTHERS
580332	2	9	130.1273	891.00	115,943.40	EA TREE REMOVAL (CUT AND REMOVE)
580333		1	4.2000	6,000.00	25,200.00	LF CURB LANDSCAPE STEEL
580336		9	126.1981	324.00	40,888.20	EA PRUNING AND TRIMMING (EXISTING TREES)
580340	1	9	2.4471	15,712.00	38,448.46	LF TREE PROTECTION (BATTERBOARD)
580340	2	1	4.0000	850.00	3,400.00	LF TREE PROTECTION (TRENCHING)
580401		1	500.0000	3.00	1,500.00	AS BENCHMARK
580402		1	500.0000	4.00	2,000.00	AS STAFF GAUGE
581	1	2	3.5702	2,670.00	9,532.50	PL GROUND COVER (SEEDLINGS, BARE ROOT MATL, PROPAGULE)
581	2	16	4.9622	158,653.00	787,271.23	PL GROUND COVER (10" TO 18" HEIGHT OR SPREAD)
582	2	13	6.3849	131,513.00	839,695.96	PL SHRUBS (10" TO 18" HEIGHT OR SPREAD)
582	3	5	13.2639	5,156.00	68,388.84	PL SHRUBS (19" TO 7' HEIGHT OR SPREAD)
582	4	1	95.0000	1,255.00	119,225.00	PL SHRUBS (15 GAL- 8' TO 20' HEIGHT OR CLEAR TRUNK)
583	1	2	0.3000	9,475.00	2,842.50	PL TREE (SEEDLINGS)
583	2	3	7.9244	3,404.00	26,974.74	PL TREE (10" TO 18" HEIGHT OR SPREAD)
583	3	4	41.6703	1,422.00	59,255.22	PL TREE (19" TO 7' HEIGHT OR SPREAD)
583	4	28	160.8288	10,313.00	1,658,627.71	PL TREE (8' TO 20' HEIGHT OR CLEAR TRUNK)
583	5	4	432.8312	471.00	203,863.50	PL TREE (21' OR MORE HEIGHT OR CLEAR TRUNK)
584	3	1	25.5600	5.00	127.80	PL PALMS SINGLE TRUNK (19" TO 7' HEIGHT OR SPREAD)
584	4	15	148.8641	4,387.00	653,066.64	PL PALMS SINGLE TRUNK (8' TO 20' HT. OR CLEAR TRUNK)
584	5	2	133.1836	256.00	34,095.00	PL PALMS SINGLE TRUNK (21' OR MORE HT OR CLEAR TRUNK)
585	4	1	3000.0000	5.00	15,000.00	PL PALMS CLUMP TYPE (8' TO 20' HT. OR CLEAR TRUNK)
589	1	3	56000.0000	3.00	168,000.00	LS LANDSCAPE ESTABLISHMENT AND MAINTENANCE
590	70	17	39406.0441	17.00	669,902.75	LS IRRIGATION SYSTEM
604	1	11	770.8696	23.00	17,730.00	LO DATA COLLECTION (INTERSECTION) (TURNING MOVEMENT)
604	1	22	785.7143	7.00	5,500.00	LO DATA COLLECTION (MID-BLOCK) (APPROACH)
604	2	24	10569.0000	2.00	21,138.00	PA ANALYSIS & DOC(2 INTERSECTIONS) (4 TIMING PATERNS)
604	2	46	15000.0000	1.00	15,000.00	PA ANALYSIS & DOC(4 INTERSECTION) (6 TIMING PATERNS)
604	2	136	15000.0000	1.00	15,000.00	PA ANALYSIS & DOC(13 INTERSECTION) (6 TIMING PATERNS)
604	3	1	68.0000	64.00	4,352.00	PI TIMING IMPLEMENTATION (CONTROLLER)
604	3	2	1505.2632	19.00	28,600.00	PI TIMING IMPLEMENTATION (CONTROLLER & COORD UNIT)

Next 4A

CLIENT Harder	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

1. Stormwater Control System

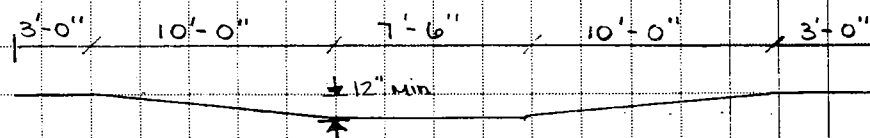
Revised 9/28/03
AMB 9/29/03

4 downhutes are located on the landfill w/ the following lengths:

Northeast Corner	124.0 ft
Northwest Corner	131.5 ft
Southeast Corner	131.6 ft
Southwest Corner	162.3 ft

See Revised stormwater
calcs on sheet 4D

~~Typical downhute section:~~



Area = 17.5 sf

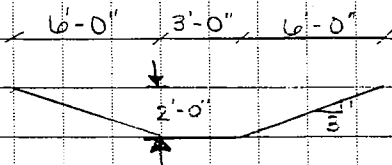
Perimeter = 27.5 ft

} Via
AutoCAD

~~Excavation Volume = cross-sectional area * length~~
~~= 17.5 sf * (124.0' + 131.5' + 131.6' + 162.3')~~
 ↑
 via autocadd
~~= 9615 cf~~

1 ditch located adjacent to road w/ a length of 471.4 ft

Ditch section:



Area = 8 sf

Perimeter = 15 ft

} Via
AutoCAD

~~Excavation Volume = cross-sectional area * length~~
~~= 8 sf * 471.4 ft~~
 ↑
 via AutoCAD
~~= 8485 cf~~

Total Excavation Volume = (9615 cf + 8485 cf) * $\frac{cy}{27cf}$ = 670 cy

Excavation Volume = 670 cy

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/26/03
	CHECKED ECC	DATE 4/16/03

6 Stormwater Control System (cont)

Revised 9/28/03
AMB 9/29/03

Cost

2002 Means Excavating

02315 900 0050 3/8 cy tractor loader/backhoe \$5.75/cy

$$2003 \text{ Cost} = \$5.75/\text{cy} \times 1.02 = \$5.87/\text{cy}$$

Erosion Control:

~~$$\begin{aligned} \text{Erosion Mat Area} &= \text{downchute perimeter} \times \Sigma \text{length} + \text{ditch perimeter} \times \text{length} \\ &= (27.5 \text{ ft} + 549.1 \text{ ft} + 15 \text{ ft} + 171.4 \text{ ft}) \times \frac{\text{SY}}{9 \text{ sf}} \\ &= 2464 \text{ sy} \end{aligned}$$~~

Erosion Mat Area = 2464 sy

See Revised Stormwater
Calcs on sheet 4D

Cost

FDOT Contract History 2001

Item 571-111 Plastic Erosion Mat \$5.00/sy

Update to 2003 Cost @ 2%/yr

$$2003 \text{ Cost} = \$5.00/\text{sy} \times 1.04 = \$5.20/\text{sy}$$

Erosion Mat Cost = \$5.20/sy

CLIENT Hamdee	PROJECT Permit Renewal	JOB NO. 09190033.08
SUBJECT Closing Costs	BY LEK	DATE 3/26/03
	CHECKED ECC	DATE 4/16/03

6 Stormwater Control System (cont.)

Revised 9/28/03
AMB 9/29/03

Gabion Baskets will be used to slow water & dissipate energy @ each downchute.

4 Gabion Baskets Required @ 4sy

Cost

FOOT Contract History 2001

Item 530 T74 Gabion Basket (18" thick) \$120/sy

~~2003 Cost = $\frac{\$120}{sy} \times 1.04 = \$124.80/sy$~~

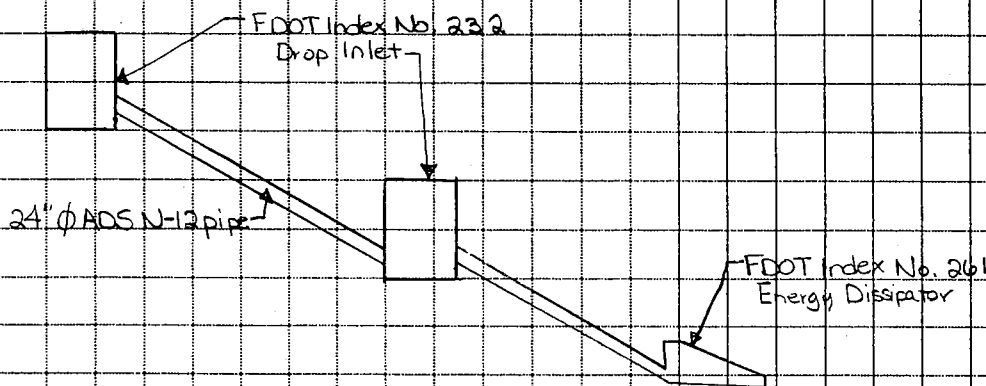
See revised stormwater calcs on sheet 4D

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs Revised	BY LEK	DATE 9/25/03
	CHECKED AMB	DATE 9/29/03

6. Stormwater Control System

Revised 9/28/03

Drop inlets are located on the northwest, northeast, and southeast corners of the landfill. The northwest and northeast drop inlets are located at elevations 135 and 110; the southeast drop inlet is located at elevation 110.



NAME	PIPE LENGTH	No. DROP INLETS	No. ENERGY DISSIPATOR
SE 110	120 ft	1	1
NW 135	115 ft	1	0
NW 110	125 ft	1	1
NE 135	90 ft	1	0
NE 110	95 ft	1	1
TOTALS	545 ft	5	3

use 600 ft

ADS Quote. (9/25/03, Emil Campillo, (813)363-7177)
Mat'l cost = \$10.5/ft

$$600 \text{ ft} \times \frac{\$10.5}{\text{ft}} = \$6300$$

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 9/25/03
	CHECKED AMB	DATE 9/29/03

6 Stormwater Control System (cont.)

Revised 9/28/03

SCS Field Services Quote

Installation cost:

2 laborers for 20 hr/person @ \$55/hr

$$2 \text{ laborers} \times 20 \text{ hr} \times \frac{\$55}{\text{hr}} = \$2200$$

1 construction supervisor for 20 hr @ \$86/hr

$$20 \text{ hr} \times \frac{\$86}{\text{hr}} = \$1720$$

Equipment: trackhoe for 2 days at \$1000 (total)
fuel \$200

Travel: \$150

Hotel: 3 people at \$75/person

$$3 \text{ people} \times \frac{\$75}{\text{person}} = \$225$$

Per diem: 3 people for 2 days @ \$26/day

$$3 \text{ people} \times 2 \text{ days} \times \frac{\$26}{\text{day-person}} = \$156$$

\$5650

$$\text{Pipe Cost} = \text{Mat'l Cost} + \text{Installation Cost} \\ = \$6300 + \$5650$$

Pipe Cost = \$11,950

Stormwater system requires:

5 x FDOT Index No. 232 @ \$1758 (Sheet 4H)

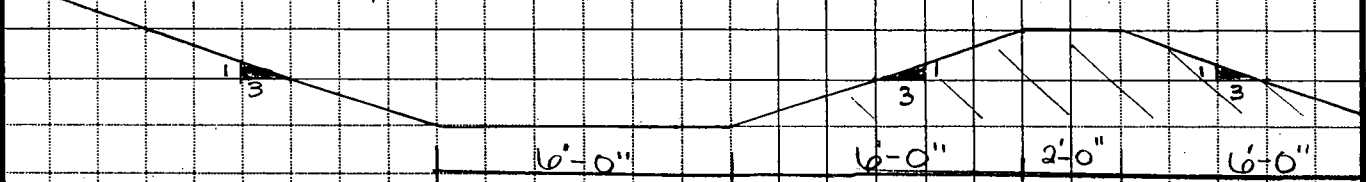
3 x FDOT Index No. 201 @ \$650 (Sheet 4I)

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.06
SUBJECT Closing Costs Revised	BY LEK	DATE 9/25/03
	CHECKED	DATE

6 Stormwater Control System (cont.)

Revised 9/28/03

Approximately 2,280 LF of berm will be required at elevation 110.



Shaded area represents the area of fill.

$$\text{Area} = 2' \text{ width} \times 2' \text{ deep} + 2 \left(\frac{1}{2} \times 6' \text{ wide} \times 2' \text{ deep} \right) = 16 \text{ ft}^2$$

$$\text{Volume} = 16 \text{ ft}^2 \times 2,280 \text{ LF} = 36,480 \text{ cf} = 1,350 \text{ cy of fill}$$

Per Quote on Sheet 1B

Hardee County Subcontractor Quote
\$4.50/cy for mat'l & hauling

$$\text{Cost for benches} = 1,350 \text{ cy} \times \frac{\$4.50}{\text{cy}} = \$6,075$$

Erosion Control

The south east corner of the landfill will have GFFR (grout filled fabric revetment) placed.

$$\text{SE Corner Area} = 4300 \text{ sf}$$

$$\text{GFFR Cost} = \$3.41/\text{sf}$$

Geostar, 1-800-253-0561

Cost includes mat'ls and installation.

Previous 4E

Next 4G

QUOTATION



PLACE ORDERS:

800-733-9987

FAX: 800-733-1974

Page 1 of 1

115 W. Crown Point Rd.

Winter Garden, FL 34787

Ph: 800-733-0535

Fax: 407-654-6662

JOB NAME:

LOCATION:

COUNTY:

QUOTE DATE:

September 25, 2003

CONTRACTOR (S):

BID DATE:

CUSTOMER: SCS Engineers

ENGINEER:

SCS Engineers

CONTACT:

Lindsey Kennelly

SALESMAN:

Emil Campillo

11425

PHONE:

[1] 813-621-0080

FAX: [1] 813-623-6757

SUBJECT TO THE FOLLOWING CONDITIONS:

Budget Pricing

(Note: The quantities shown are estimated. Please verify product quantities for accuracy before ordering.)

ITEM#	QTY.	UNIT	DESCRIPTION	PRODUCT #	UNIT PRICE	TOTAL
1	600	l.f	24" N-12 Pipe, Solid, ST, Integral Bell, 20' Stick	2485-0020IB	\$ 10.50	\$ 6,300.00
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
					TOTAL PAGE 1	\$ 6,300.00

P.O. #:

REQUESTED SHIP DATE:

BILL TO:

SHIP TO:

FIELD CONTACT:

FIELD PHONE #:

REMARKS:

Next Sheet 44

PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUNTY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
425 1321	7	3487.2252	27.00	94,155.08	EA INLETS (CURB)	(TYPE P-2) (<10')
425 1322	1	4500.0000	1.00	4,500.00	EA INLETS (CURB)	(TYPE P-2) (>10')
425 1325	3	1631.3167	6.00	9,787.90	EA INLETS (CURB)	(TYPE P-2) (PARTIAL)
425 1329	1	1800.0000	1.00	1,800.00	EA INLETS (CURB)	(TYPE P-2) (MODIFY)
425 1331	5	3232.4550	16.00	51,719.28	EA INLETS (CURB)	(TYPE P-3) (<10')
425 1335	2	2773.3333	3.00	8,320.00	EA INLETS (CURB)	(TYPE P-3) (PARTIAL)
425 1341	4	3300.9524	21.00	69,320.00	EA INLETS (CURB)	(TYPE P-4) (<10')
425 1345	3	3273.3100	6.00	19,639.86	EA INLETS (CURB)	(TYPE P-4) (PARTIAL)
425 1351	46	2358.2240	722.00	1,702,637.75	EA INLETS (CURB)	(TYPE P-5) (<10')
425 1352	7	3221.6776	21.00	67,655.23	EA INLETS (CURB)	(TYPE P-5) (>10')
425 1355	10	1648.9048	90.00	148,401.43	EA INLETS (CURB)	(TYPE P-5) (PARTIAL)
425 1361	44	2576.0223	307.00	790,838.86	EA INLETS (CURB)	(TYPE P-6) (<10')
425 1362	4	3414.3680	5.00	17,071.84	EA INLETS (CURB)	(TYPE P-6) (>10')
425 1365	6	2021.0526	19.00	38,400.00	EA INLETS (CURB)	(TYPE P-6) (PARTIAL)
425 1411	6	5080.9146	13.00	66,051.89	EA INLETS (CURB)	(TYPE J-1) (<10')
425 1412	1	4620.0000	1.00	4,620.00	EA INLETS (CURB)	(TYPE J-1) (>10')
425 1421	4	4665.2000	4.00	18,660.80	EA INLETS (CURB)	(TYPE J-2) (<10')
425 1431	1	3700.0000	1.00	3,700.00	EA INLETS (CURB)	(TYPE J-3) (<10')
425 1441	3	4783.5150	4.00	19,134.06	EA INLETS (CURB)	(TYPE J-4) (<10')
425 1451	24	3690.9570	192.00	708,663.75	EA INLETS (CURB)	(TYPE J-5) (<10')
425 1452	10	4962.8759	46.00	228,292.29	EA INLETS (CURB)	(TYPE J-5) (>10')
425 1453	1	3826.0000	9.00	34,434.00	EA INLETS (CURB)	(TYPE J-5) (JBOTT) (<10')
425 1455	2	2153.5000	2.00	4,307.00	EA INLETS (CURB)	(TYPE J-5) (PARTIAL)
425 1461	25	4015.4372	89.00	357,373.91	EA INLETS (CURB)	(TYPE J-6) (<10')
425 1462	5	5167.1487	15.00	77,507.23	EA INLETS (CURB)	(TYPE J-6) (>10')
425 1463	1	4049.0000	1.00	4,049.00	EA INLETS (CURB)	(TYPE J-6) (JBOTT) (<10')
425 1465	1	2400.0000	1.00	2,400.00	EA INLETS (CURB)	(TYPE J-6) (PARTIAL)
425 1471	6	4107.1034	29.00	119,106.00	EA INLETS (CURB)	(TYPE 7) (<10')
425 1475	1	530.0000	2.00	1,060.00	EA INLETS (CURB)	(TYPE 7) (PARTIAL)
425 1481	4	3088.3580	15.00	46,325.37	EA INLETS (CURB)	(TYPE 8) (<10')
425 1485	1	2000.0000	3.00	6,000.00	EA INLETS (CURB)	(TYPE 8) (PARTIAL)
425 1501	10	1578.7413	271.00	427,838.90	EA INLETS (DT BOT)	(TYPE A) (<10')
425 1502	2	4483.0000	5.00	22,415.00	EA INLETS (DT BOT)	(TYPE A) (>10')
425 1503	1	4000.0000	6.00	24,000.00	EA INLETS (DT BOT)	(TYPE A) (J BOT, <10')
425 1505	2	1140.6355	20.00	22,812.71	EA INLETS (DT BOT)	(TYPE A) (PARTIAL)
425 1511	11	2738.5206	82.00	224,558.69	EA INLETS (DT BOT)	(TYPE B) (<10')
425 1512	1	3586.4100	2.00	7,172.82	EA INLETS (DT BOT)	(TYPE B) (>10')
425 1513	3	4636.9733	3.00	13,910.92	EA INLETS (DT BOT)	(TYPE B) (J BOT, <10')
425 1515	3	1912.3958	48.00	91,795.00	EA INLETS (DT BOT)	(TYPE B) (PARTIAL)
425 1521	50	1758.5244	299.00	525,798.79	EA INLETS (DT BOT)	(TYPE C) (<10')
425 1522	2	1762.5000	2.00	3,525.00	EA INLETS (DT BOT)	(TYPE C) (>10')
425 1523	8	3451.1250	16.00	55,218.00	EA INLETS (DT BOT)	(TYPE C) (J BOT, <10')
425 1524	1	3150.7700	1.00	3,150.77	EA INLETS (DT BOT)	(TYPE C) (J BOT, >10')
425 1525	4	1693.1034	29.00	49,100.00	EA INLETS (DT BOT)	(TYPE C) (PARTIAL)
425 1527	3	6418.0000	5.00	32,090.00	EA INLETS (DT BOT)	(TYPE C) (J BOT, <10', SPECIAL)
425 1529	4	2383.3333	6.00	14,300.00	EA INLETS (DT BOT)	(TYPE C) (MODIFY)
425 1531	14	1443.2287	87.00	125,560.90	EA INLETS (DT BOT)	(TYPE C MODIFIED) (<10')
425 1533	1	3200.0000	23.00	73,600.00	EA INLETS (DT BOT)	(TYPE C MODIFIED) (J BOT, <10')
425 1534	1	4000.0000	3.00	12,000.00	EA INLETS (DT BOT)	(TYPE C MODIFIED) (J BOT, >10')
425 1535	1	1071.0000	4.00	4,284.00	EA INLETS (DT BOT)	(TYPE C MODIFIED) (PARTIAL)

Next 41

Sheet 41

PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUNTIY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
430942	66	1	17.0000	186.00	3,162.00	LF PIPE ARCH DESILTING(42" X 29" CD)
430942	69	1	15.0000	24.00	360.00	LF PIPE ARCH DESILTING (64" X 43" CD)
430943	23	1	3.0000	194.00	582.00	LF PIPE DESILTING (15" GD)
430944	02	4	3.2672	930.20	3,039.17	LF PIPE ELLIP DESILTING (14" X 23" SD)
430944	03	5	9.8172	607.30	5,962.00	LF PIPE ELLIP DESILTING (19" X 30" SD)
430944	04	4	7.8573	683.00	5,366.56	LF PIPE DESILTING (24" X 38" SD)
430944	05	2	12.0367	165.00	1,986.05	LF PIPE ELLIP DESILTING (29" X 45" SD)
430944	21	1	3.0000	48.00	144.00	LF PIPE DESILTING (12" SD)
430944	23	12	3.6830	1,647.50	6,067.72	LF PIPE DESILTING (15" SD)
430944	25	30	4.6577	15,755.70	73,385.46	LF PIPE DESILTING (18" SD)
430944	27	1	23.0000	57.00	1,311.00	LF PIPE DESILTING (21" SD)
430944	29	20	5.3593	5,425.00	29,073.97	LF PIPE DESILTING (24" SD)
430944	33	7	5.7436	1,434.80	8,240.85	LF PIPE DESILTING (30" SD)
430944	38	7	11.1477	1,460.00	16,275.60	LF PIPE DESILTING (36" SD)
430944	40	2	10.4828	116.00	1,216.00	LF PIPE DESILTING (42" SD)
430944	41	2	9.1160	181.00	1,650.00	LF PIPE DESILTING (48" SD)
430944	45	1	10.0000	220.00	2,200.00	LF PIPE DESILTING (72" SD)
430944	47	1	27.5000	100.00	2,750.00	LF PIPE DESILTING (84" SD)
430944	62	1	10.0000	564.00	5,640.00	LF PIPE ARCH DESILTING (21" X 15" SD)
430944	64	3	11.3750	408.00	4,641.00	LF PIPE ARCH DESILTING (28" X 20" SD)
430944	66	2	17.3243	888.00	15,384.00	LF PIPE ARCH DESILTING (42" X 29" SD)
430950	21	1	50.9983	8,393.00	428,028.38	CY CONC BOX CULVERT DESILTING
430961116	1	1	10.0000	120.00	1,200.00	LF PIPE PVC (SCHEDULE 40) (ENCASED) (6")
430961209	2	1	6.9973	724.00	5,066.08	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (2")
430961211	1	1	4.0000	180.00	720.00	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (3")
430961213	4	1	13.6940	1,163.00	15,926.10	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (4")
430961216	1	1	14.2000	199.00	2,825.80	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (6")
430961218	5	1	19.8787	5,106.00	101,500.40	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (8")
430961220	2	1	16.0536	373.00	5,988.00	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (10")
430961221	1	1	200.0000	12.00	2,400.00	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (12")
430961229	1	1	13.0000	122.00	1,586.00	LF PIPE PVC (SCHEDULE 40) (NOT ENCASED) (24")
430961325	1	1	34.5000	240.00	8,280.00	LF PIPE PVC (SCHEDULE 40) (CROSS DRAIN) (18")
430962211	1	1	5.0000	568.00	2,840.00	LF PIPE PVC(SCH 80) (NOT ENCASED) (3")
430962213	2	1	16.4186	387.00	6,354.00	LF PIPE PVC (SCHEDULE 80) (NOT ENCASED) (4")
430962216	2	1	29.4118	510.00	15,000.00	LF PIPE PVC (SCHEDULE 80) (NOT ENCASED) (6")
430962218	2	1	48.8060	134.00	6,540.00	LF PIPE PVC (SCHEDULE 80) (NOT ENCASED) (8")
430962221	1	1	50.0000	34.00	1,700.00	LF PIPE PVC (SCHEDULE 80) (NOT ENCASED) (12")
430982123	1	1	615.0000	1.00	615.00	EA MITERED END SECTION (OPTIONAL ROUND) (15" CD)
430982125	19	1	715.3401	140.00	100,147.62	EA MITERED END SECTION (OPTIONAL ROUND) (18" CD)
430982129	21	1	711.0695	91.00	64,707.32	EA MITERED END SECTION (OPTIONAL ROUND) (24" CD)
430982133	10	1	1086.7708	48.00	52,165.00	EA MITERED END SECTION (OPTIONAL ROUND) (30" CD)
430982138	8	1	1369.0909	22.00	30,120.00	EA MITERED END SECTION (OPTIONAL ROUND) (36" CD)
430982140	5	1	1842.8571	7.00	12,900.00	EA MITERED END SECTION (OPTIONAL ROUND) (42" CD)
430982141	2	1	1637.5000	2.00	3,275.00	EA MITERED END SECTION (OPTIONAL ROUND) (48" CD)
430982142	2	1	2666.6667	3.00	8,000.00	EA MITERED END SECTION (OPTIONAL ROUND) (54" CD)
430982221	1	1	680.0000	2.00	1,360.00	EA MITERED END SECTION (CONC PIPE ROUND) (12" CD)
430982223	8	1	788.4052	23.00	18,133.32	EA MITERED END SECTION (CONC PIPE ROUND) (15" CD)
430982225	23	1	640.1778	78.00	49,933.87	EA MITERED END SECTION (CONC PIPE ROUND) (18" CD)
430982229	17	1	647.8535	49.00	31,744.82	EA MITERED END SECTION (CONC PIPE ROUND) (24" CD)
430982233	6	1	1637.2727	11.00	18,010.00	EA MITERED END SECTION (CONC PIPE ROUND) (30" CD)

Next 4)

Sheet 41

HYDROTEx FABRIC FORMED CONCRETE PROJECT COST ESTIMATE

GEOSTAR

Date: 9/29/2003

Customer: SCS Engineers
 Job Name: Landfill Closure
 Location: Tampa, FL

Fabric Style: US400
 Average Thickness, in.: 4.0
 Production Rate, Sq. Ft./Day: 2,500
 Total Square Feet (Cast-in Place): 4,500
 Fabric Form Waste, %: 2.00%
 Geotextile Waste, %: 2.00%
 Concrete Waste, Cu. Yd./Day: 2
 Production Delays, %: 10.00%

Profit on Material: 15.00%
 Overhead on Material: 15.00%
 Profit on Labor: 15.00%
 Overhead on Labor: 15.00%
 Profit on Equipment: 15.00%
 Overhead on Equipment: 15.00%

Sales Tax: 7.00%
 Bonding: 0.00%
 Payroll Tax and Insurance: 30.00%

Geotextile Filter/Sq. Yd. \$ 0.40
 Fabric Form Cost/Sq. Ft.: \$ 0.60
 Slide Fasteners - Zippers \$ 0.82
 Fine Aggregate Concrete Cost/Cu. Yd.: \$ 80.00

Hours Worked/Day: 8.00
 Days Worked/Week: 5.00

Fabric Form Contraction, Slope: 5.00%
 Fabric Form Contraction, Transverse: 5.00%
 Geotextile Provision For Overlaps: 10.00%

Total Geotextile Filter, Sq. Yd. 567
 Total Fabric Form Required, Sq. Ft. 5,086
 Total Zipper Required, LF 0
 Total Concrete, Cu. Yd. 64

Production Days: 1.8
 Production Delays, Days: 0.2
 Total Days: 2.0

Materials Costs:

Geotextile Filter: \$ 226.67
 Fabric Forms: \$ 3,051.52
 Slide Fasteners - Zippers \$ -
 Concrete: \$ 5,087.62
Total Materials Costs: \$ 8,365.81

Supervision and Labor Costs:

	Cost/Hr.	
Superintendents:	0 \$ 25.00	\$ -
Foreman:	1 \$ 20.00	\$ 416.00
Pump Operator:	0 \$ 20.00	\$ -
Divers:	0 \$ 30.00	\$ -
Laborers:	4 \$ 12.00	\$ 998.40
Total Supervision and Labor:		\$ 1,414.40

Equipment:

	Cost/Day	
Concrete Pump :	1.0 \$ 640.00	\$ 1,280.00
Sewing Machine:	1.0 \$ 25.00	\$ 50.00
Generator and Water Pump:	1.0 \$ 5.00	\$ 10.00
Pick-up Truck:	1.0 \$ 75.00	\$ 150.00
Diving Equipment:	\$ -	\$ -
Total Equipment Costs:		\$ 1,490.00

Profit: \$ 1,690.53
 Overhead: \$ 1,690.53
 Sales Tax: \$ 689.91
 Bonding: \$ -
Total Price: \$ 15,341.17
Total Price/Sq. Ft.: \$ 3.41

Nexts

Sheet 4 J

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

7. Gas Controls: Passive

Revised 9/28/03
AMB 9/29/03

Add 8 passive well for closure.

Approximate depth of each well is 45 vF

$$\text{Well depth} = 8 \text{ wells} \times \frac{45 \text{ vF}}{\text{Well}} = 360 \text{ vF}$$

$$\text{Well depth} = 360 \text{ vF}$$

Cost

SCS Field Services Quote

\$72 vF (Price includes 30" borehole, pipe & well)

$$\text{Passive Well Cost} = \$72 \text{ vF}$$

Next Sheet 6

CLIENT <u>Hardee</u>	PROJECT <u>Permit Renewal</u>	JOB NO. <u>09199033.08</u>
SUBJECT <u>Closing Costs</u>	BY <u>LEK</u>	DATE <u>3/21/03</u>
	CHECKED <u>ECC</u>	DATE <u>4/16/03</u>

8. Gas Control: Active Extraction
A passive system is to be installed.

Revised 9/28/03
AMB 9/29/03

9. Security System
Site has adequate security system.

SCS ENGINEERS

Sheet 7A-1 of _____

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked <i>AMB</i>	Date <i>9/29/03</i>

Revised: LEK 7/14/03

TASK

Calculate and provide reasoning for Items 10 and 11 of Estimated Closing Costs

ATTACHMENTS

Manpower and Fee Estimate - Sheets 12a through 12d
Includes: Manpower and Fee Estimate by Task Dollars and Reimbursables Estimate.

NOTE

For a 16.7-acre (surface area) closure, manpower and fee estimate is attached.
Use 2 work months for closure. (2 work months)(4 wk/1 mo)(5 days/wk)(8 hr/day) = ~~320~~ hours
6 6 **960**

Item 10 - Engineering

10 a - Closure Plan Report

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	120	Design closure and write specs
Drafting	80	Complete and reproduce closure design drawings
Sr. Proj Engineer	40	Oversee Closure Design, Review Specs & Project Management
Admin	40	Word process support
Project Director	10	Check, sign, & seal

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(2 pgs/fax)(1 fax/wk)(4 wk/mo)(2 work months)(2 file copies) = 32 pages
Xerox Reproduction	(5 pgs/letter)(4 ltrs/wk)(4 wk/mo)(2 work months)(4 copies) = 640 pages
CADD Reproductions	(4 pages)(9 copies) + 12 draft copies = 48 sheets
Computer Time- CADD	CADD time from manpower = 80 hours
Computer Time- Word Process	Computer time from admin manpower = 40 hours
Licenses/Permit	\$0
Topographic Survey	\$2,500 (Preliminary) Source: Chris Xynides with DC Johnson and Associates (12/10/02) 352-588-2768 Ext. 305

10 b - FDEP Coordination

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	20	Response to FDEP comments
Drafting	20	For changes to drawings
Sr. Proj Engineer	16	Response to FDEP comments, checking & project management
Project Director	8	Response to FDEP comments

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(2 pgs/fax)(1 fax/week)(4 wk/mo)(1 work months)(2 file copies) = 16 pgs
Xerox Reproduction	(5pgs/letter)(1 ltr/wk)(4 wk/mo)(1 work months)(4 copies) = 80 pages
CADD Reproductions	Estimate at: (3 pages)(7 copies) + 20 draft copies = 41 sheets
Computer Time- CADD	CADD time from manpower = 20 hours

*Previous Sheet 7A
Next Sheet 7B*

SCS ENGINEERS

Sheet 7B-1 of _____

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked <i>AMB</i>	Date <i>4/29/03</i>

Revised: LEK 7/14/08

10 c - Bidding

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	32	Response to bidder's questions
Sr. Proj Engineer	16	Response to bidder's questions and Project Management
Project Director	8	Check, sign, seal packages
Drafting	20	Reproduce bid package drawings
Admin	16	Reproduce and assemble bid package

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(2 pgs/fax)(12 faxes)(3 file copies) = 72 pgs
Xerox Reproduction	Bid package: (200 pgs)(12 bidders) = 2400 pages
Graphics Reproduction	Bid package: (15 pgs)(12 bidders) = 180 pages
Word Processing	Computer time from Admin manpower = 16 hours
Shipping	(12 Bid packages)(\$20/Bid Package) = \$240

10 d - Final Survey

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	24	Coordination with surveyor

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Aerial Survey	\$5,000 (Final) Source: Chris Xynides with DC Johnson and Associates (12/10/02) 352-588-2768 Ext. 305

10 e - Construction Certification

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	120	Complete within 30 days
Drafting	20	Any redesigns/as built
Sr. Proj Engineer	12	Project management & Checking
Admin. Asst.	10	Production support
Project Director	4	Check, sign, and seal

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(1 faxes/wk)(2 pgs/fax)(8 wk)(3 file copies) = 48 pages
Postage	Certification distribution; estimate at \$50
Xerox Reproduction	(250 pages)(8 copies) = 2000 pages
Graphics Reproduction	As built: (15 sheets)(6 copies/sheet) = 90 sheets
Equipment/Supplies	Binders, inserts, etc., estimate at \$400
Computer Time- Word Process	Computer time from admin manpower = 10 hours
Computer Time- CADD	CADD time from manpower = 20 hours

Previous Sheet 7B
Next Sheet 7C

SCS ENGINEERS

Sheet 7C-1 of _____

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked AMB	Date 9/28/03

Revised : LEK 7/14/03
Checked :

Item 11 - Professional Services

11 a - Contract Management

Full-time during construction

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Sr. Proj Engineer	120	Project management
Equals PE Supervisor =	120	Use Sr. Project Engineer rate
 Staff Engineer	 160	 On site full-time
<u>Administration</u>	<u>32</u>	<u>Office assistance</u>
Equals on-site tech =	32	Use Secreterial/Clerical Rate

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Rental Truck for Eng	(2 work months)(\$1050/month) = \$2,100
Cell Phone for Eng	(60 work days)(\$5/day) = \$300
Meals	30 days (1 month)
Lodging	30 days (1 month)
Faxes	(2 pgs/fax)(2 faxes/wk)(26 wks)(3 file copies) = 312 pgs
Xerox Reproduction	Meeting Minutes, letters: (10 pgs/wk)(26 wks)(3 copies) = 780 pages

11 b - Quality Assurance

During placement of fill & top soil

To cover liner and testing assume \$2500/acre of closure
\$2500/acre x 16.7 acres = \$41,750

A resident technician will need to be onsite for 6 months during the liner process.

	<u>Hours</u>
Resident Technician	320 Liner Quality Assurance

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Cell Phone for Eng	Included in Contract Management Costs
Rental Truck for Eng	Included in Contract Management Costs
Meals	30 days (1 month)
Lodging	30 days (1 month)
Equipment & Supplies	Estimate at \$1,500

Previous Sheet 7c
Next Sheet 8A

MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE
 HARDEE COUNTY REGIONAL LANDFILL CLOSURE

Task Key

- 10 a - Closure Plan Report
- 10 b - FDEP Coordination
- 10 c - Bidding
- 10 d - Final Survey
- 10 e - Construction Certification
- 11 a - Contract Management
- 11 b - CQA

Personnel						Professional Services		Total (hours)	Rate (\$)	Total (\$)
	10 a	10 b	10 c	10 d	10 e	11 a	11 b			
Project Director	10	8	8	0	4	0	0	30	140	4,200
Senior Project Professional	40	16	16	0	12	120	0	204	98	19,992
Project Professional	0	0	0	0	0	0	0	0	80	0
Staff Professional	120	20	32	24	120	160	0	476	70	33,320
Designer/Drafter	80	20	20	0	20	0	0	140	55	7,700
Technician	0	0	0	0	0	0	320	320	45	14,400
Administrative Assistant	40	0	16	0	10	32	0	98	40	3,920
Subtotal Labor (hours)	290	64	92	24	166	312	320	1,268		
Subtotal Labor (\$)	19,720	5,188	6,668	1,680	11,636	24,240	14,400			83,532
Reimbursables (See Table 2)	3,704	379	1,276	5,000	1,514	5,664	45,500			63,037
G&A, 15 percent reimbursables	556	57	191	750	227	850	6,825			9,456
Total reimbursables	4,260	436	1,467	5,750	1,741	6,514	52,325			72,493
Subtotal, Fee Estimate	23,980	5,624	8,135	7,430	13,377	30,754	66,725			156,025
	Closure Plan Report									
	Total = 37,739					Say ==> \$156,000				

Previous Sheet 8
 Not Sheet 8B

MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE
HARDEE COUNTY REGIONAL LANDFILL CLOSURE

MANPOWER AND FEE ESTIMATE (Task Amounts)

Task Key

10 a - Closure Plan Report 10 d - Final Survey 11 a - Contract Management
10 b - FDEP Coordination 10 e - Construction Certification 11 b - CQA
10 c - Bidding

Personnel	10 a	10 b	10 c	10 d	10 e	11 a	11 b
Project Director	1,400	1,120	1,120	0	560	0	0
Senior Project Professional	3,920	1,568	1,568	0	1,176	11,760	0
Project Professional	0	0	0	0	0	0	0
Staff Professional	8,400	1,400	2,240	1,680	8,400	11,200	0
Designer/Drafter	4,400	1,100	1,100	0	1,100	0	0
Technician	0	0	0	0	0	0	14,400
Administrative Assistant	1,600	0	640	0	400	1,280	0
Subtotal Labor (\$)	19,720	5,188	6,668	1,680	11,636	24,240	14,400

Previous Sheet 8 B
Next Sheet 8 C

Checked: 11/1/03

MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE
HARDEE COUNTY REGIONAL LANDFILL CLOSURE

REIMBURSABLES ESTIMATE (Task Amounts)

Task Key

- 10 a - Closure Plan Report
- 10 b - FDEP Coordination
- 10 c - Bidding
- 10 d - Final Survey
- 10 e - Construction Certification
- 11 a - Contract Management
- 11 b - CQA

Reimbursable
Total = 63,037

Reimbursable	Unit Cost (\$)	Unit									Total Units	Total (\$)	
			10 a	10 b	10 c	10 d	10 e	11 a	11 b				
Subconsultants, Topographic survey	1	LS	2,500			5,000						7,500	7,500
Subcontractors/Drillers	1	LS										0	0
Outside Lbr/Temp Svcs	1	LS										0	0
Laboratory Services	1	EA										0	0
Vehicle Mileage (Auto)	0.36	MI										0	0
Vehicle Mileage (Truck)	0.50	MI										0	0
Company Vehicle	50	DA										0	0
Rental Truck, Engineer	1050	MO							2			2	2,100
Rental Truck, Technician	0	MO										0	0
Parking & Tolls	1	LS										0	0
Air Fare	1	EA										0	0
Meals	25	DA							30	30		60	1,500
Lodging, Hotel	50	DA							30	30		60	3,000
Cell Phone for Engineer	5	DA							60			60	300
Faxes	3	PG	32	16	72		48	312				480	1,440
Postage & Freight	1	LS			240		50					290	290
Reproduction (Xerox)	0.1	EA	640	80	2,400		2,000	780				5,900	590
Reproduction (Graphics) CADD	3	EA	48	41	180		90					359	1,077
Equipment/Supplies	1	LS					400			1,500		1,900	1,900
Draeger Tubes	5	EA										0	0
Gas Meters	50	DA										0	0
Equipment Rental	1	LS										0	0
Computer (Word Process)	5	HR	20		8		10					38	190
Computer (CADD)	20	HR	40	10			20					70	1,400
Quality Assurance Manpower/Testing	1	LS								41,750			41,750
Licenses/Permits	1	LS	0									0	0

Previous Sheet 8C
Next Sheet 9A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

1 Groundwater Monitoring

Revised 9/28/03

AMB 9/29/03

Monitored semi-annually for the following parameters:

Field Parameters

Static Water Levels (prior to purging)

Specific Conductivity

pH

Dissolved Oxygen

Turbidity

Temperature

Colors & Sheens

THESE ARE COSTS INCURRED
BY SAMPLING FIRM

Lab Parameters

Total Ammonia - N

Chlorides

Iron

Mercury

Nitrate

Sodium

Total Dissolved Solids (TDS)

40 CFR Part 358 Appendix I

The following 6 wells are to be tested:

MW-1

MW-2

MW-4

MW-5

MW-8

MW-9

Plus 2 samples for QA/QC (i.e. field equipment rinse blank & field duplicate) (Short)

Next 9B

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care		BY LEK
		DATE 3/21/03
		CHECKED ECC
		DATE 4/16/03

1. Groundwater Monitoring (cont.)

Revised 9/28/03

AMB 9/29/03

Cost

Shor + Environmental Laboratories (800)833-4021

Semi-Annual Groundwater Sampling \$ 400/sample

Sample Collection \$ 25/hr
(assume 1hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$ 25}{\text{hr}} + \frac{\$ 400}{\text{sample}} = \frac{\$ 425}{\text{sample}}$$

Estimate on Sheet 9C

Next 9C

SHORT ENVIRONMENTAL LABORATORIES, INC.
10405 US 27 South
Sebring, Florida 33870

1-800-833-4022

HRS# 85344 & E85458, FDEP QAP# 880516

803

~~(941)~~ 655-4022

07-21-99

For: Attn: J.R. Prestridge
Hardee County Solid Waste Department
685 Airport Road
Wauchula, FL 33873

Dear Mr. Prestridge:

Please find below a revised fee schedule for the Hardee County Landfill:

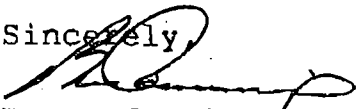
Semi-annual groundwater monitoring;	\$ 400.00/sample
Semi-annual leachate monitoring;	\$ 420.00/sample
Semi-annual surface water monitoring;	\$ 580.00/sample
Annual leachate monitoring;	\$1250.00/sample
Semi-annual water levels;	\$ 5.00/each
Quarterly methane readings;	¹⁰⁰ \$ 25.00 /sample
Sample collection / hr:	\$ 25.00/hr

We have been able to reduce some of our costs related to sampling and analysis at the landfill, therefore, we are able to extend a better discount for this project.

We appreciate the opportunity to continue providing the County with our services. Should you have any questions, please feel free to call me. Thank you.

All duplicates are paid for by Short. (per Bruce Cummings, 4/4/03, 3:30 pm)

Sincerely,


Bruce Cummings
Laboratory Director

Next 10A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ecc	DATE 4/14/03

2. Surface Water Monitoring

Revised 9/28/03

AMB 9/29/03

Monitored every 12 months for the following parameters:

Field Parameters

Specific Conductivity

pH

Dissolved Oxygen

Turbidity

Temperature

Color & Sheen

Laboratory Parameters

Zinc

Unionized Ammonia

Total Hardness

Biochemical Oxygen Demand

Copper

Iron

Mercury

Nitrate

Total Dissolved Solids

Total Organic Carbon

Fecal Coliforms

Total Phosphorous

Chlorophyll A

Total Nitrogen

Chemical Oxygen Demand

Total Suspended Solids

40 CFR Part 258, Appendix I

SW-1 is the sample location

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

2. Surface Water Monitoring (cont.) Revised 9/28/03
AMB 9/29/03

Cost

Short Environmental Laboratories (800) 833-4022

Semi-Annual surface water monitoring \$580/sample

Sample Collection \$25/hr
(Assume 1 hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$580}{\text{sample}} = \frac{\$605}{\text{sample}}$$

Estimate on sheet 9C

Next 11

CLIENT Hrdee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care		BY LEK
		CHECKED ECC
		DATE 3/21/03
		DATE 4/16/03

3. Gas Monitoring

Revised: LEK 7/16/03

Checked: AMB 9/29/03

Monitored every 3 months:

Quarter 1	April 15 th
Quarter 2	July 15 th
Quarter 3	October 15 th
Quarter 4	January 15 th

Gas Probes GP-1 through ~~GP-9~~ will be monitored
GP-11

Cost

SCS Field Services

\$750/quarter

8 hours of a technician's time @ \$45/hr = 8hr × \$45/hr = \$360

GEM rental @ \$60/day = 1 day × \$60/day = \$60

2 hour of a staff engineer's time @ \$70/hr = 2hr × \$70/hr = \$140
(for writing report)

Vehicle rental for 1 day @ \$50/day = 1 day × \$50/day = \$50

1.0 hour of a project manager's time @ \$140/hr = 1.0 × \$140/hr = \$140

Previous Sheet 11

Next Sheet 12A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.03
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

4 Leachate Monitoring

Revised 9/28/03

AMB 9/29/03

Monitored every 6 months at Manhole 1 for the following parameters:

Field Parameters

Specific Conductivity
pH
Dissolved Oxygen
Colors & Sheens

Lab Parameters

Total Ammonia - N
Bicarbonate
Chlorides
Iron
Mercury
Nitrate
Sodium
Total Dissolved Solids
40 CFR Part 258, Appendix I

Monitored annually at Manhole 1 for 40 CFR Part 258 Appendix II

Plus 2 additional samples for QA/QC (i.e. field equipment rinse & field duplicate) (Short)

Next 12 B

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

4 Leachate Monitoring (cont.)

Revised 9/28/03

AMB 9/29/03

Cost

Short Environmental Laboratories (800) 833-4022

Semiannual Leachate monitoring \$420/sample

Annual Leachate Monitoring \$1250/sample

Sample Collection \$25/hr
(Assume 1 hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$420}{\text{sample}} = \frac{\$445}{\text{sample}}$$

Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$1250}{\text{sample}} = \frac{\$1275}{\text{sample}}$$

Estimate on Sheet 9C

Next 13A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Tern Cove	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

5 Leachate Collection/Treatment System Maintenance Revised 9/28/03

AM13 9/28/03

Estimate that leachate generation will decrease by 75% with the closed landfill.

From 2002 Annual Leachate Water Balance Summary (see Sheet 13C)
7,575,540 gal of leachate was generated in 2002.

$$\text{Leachate Quantity for Post Closure} = 0.25 \times 7,575,540 \text{ gal} = 1,893,890 \text{ gal}$$

See Revised Leachate calcs on Sheet 13A-1

$$\text{Leachate Disposal Quantity} = 1,893,890 \text{ gal}$$

Leachate Disposal Cost

Per agreement w/ Hardee County Landfill & the City of Whuchula

$$\text{~~\$27.76 for first 6000 gal~~}$$

$$\text{~~\$4.49 for additional 1000 gal~~}$$

$$\text{~~\& a 25\% surcharge~~}$$

$$\text{Cost} = \left[\frac{\$27.76 \times 6000 \text{ gal}}{6000 \text{ gal}} + \frac{\$4.49}{1000 \text{ gal}} \times (1,893,890 \text{ gal} - 6000 \text{ gal}) \right] 1.25$$

$$\text{~~= \$16,808~~}$$

Leachate Hauling Cost

Estimate 2 load/day @ \$5/load for truck

Estimate 1 hauler onsite at 1.5 hr/load at a rate of \$15/hr

$$\text{Cost} = \frac{\$5}{\text{load}} \times \frac{2 \text{ load}}{\text{day}} \times \frac{5 \text{ day}}{\text{week}} \times \frac{52 \text{ week}}{\text{year}} + \frac{\$15}{\text{hr}} \times 1.5 \text{ hr} \times \frac{2 \text{ load}}{\text{day}} \times \frac{5 \text{ day}}{\text{week}} \times \frac{52 \text{ week}}{\text{year}}$$

$$\text{~~= \$17,160/year~~}$$

Clean/Inspect Leachate lines every 5 years

Quote from JetClean (see Sheet 13B)

\$4450/event

Next 13A-1

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 7/16/03
Revised	CHECKED AMB	DATE 9/24/03

5. Leachate Collection / Treatment System Maintenance

The leachate generation for the first year after capping is assumed to be the same rate at the present. As time progresses, the leachate generation rate will decrease.

7,575,540 gal of leachate generated in 2002

Source: 2002 Annual Leachate Water Balance Summary

Leachate Disposal Quantity = 7,575,540 gal/year

Leachate Disposal Cost

Per agreement with Hardee County Landfill & the City of Mauchula

\$217.76 for first 6000 gal

\$4.49 for each additional 1000 gal

and a 25% surcharge

$$\text{Cost} = \left(\frac{\$217.76}{6000 \text{ gal}} \times 6000 \text{ gal} + \frac{\$4.49}{1000 \text{ gal}} \times (7,575,540 \text{ gal} - 6000) \right) 1.25$$

$$= \$42,756$$

Leachate Disposal Cost = \$42,756/year

Leachate Hauling Cost

Hardee currently hauls 5 loads/day @ \$5/load for truck

Estimate hauler on site at 1.5 hr/load @ a rate of \$15/hr

$$\text{Cost} = \frac{\$5}{\text{load}} \times \frac{5 \text{ loads}}{\text{day}} \times \frac{1 \text{ day}}{\text{week}} \times \frac{52 \text{ week}}{\text{year}} + \frac{\$15}{\text{hr}} \times \frac{1.5 \text{ hr}}{\text{load}} \times \frac{2 \text{ loads}}{\text{day}} \times \frac{312 \text{ day}}{\text{year}}$$

Hauling Cost = \$21,340

Clean/Inspect Leachate Lines every 5 years @ \$4450/event

FLORIDA JETCLEAN INC.

P.O. 45516

HIGH PRESSURE WATER JETTING-PIPELINE TV INSPECTION-PIPE LOCATING37 Windward Island
Clearwater Fl 33767TEL : 727-462-5516
800-226-8013
FAX : 727-442-2222**FAX/MEMORANDUM**DATE : 4/8/2003
TO : Janice Williamson, Hardee County
FROM : Graeme Towns
SUBJECT : leachate Collection System Maintenance

Thank you for your inquiry.

We understand that there is approx. 3100' of 8" leachate piping and on this basis, we quote as follows:

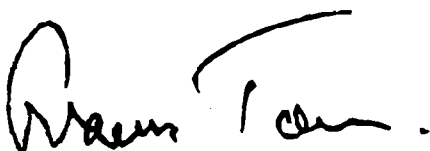
To jetclean and video inspect the above pipes:

\$4450.00

subject to:

- An adequate no charge on site water supply
- Water/debris/silt generated by any cleaning will be flushed through to pump station. No debris pumping/removal included in this bid..
- 2 wheel drive vehicle access within 10'-15' of each cleanout
- Continuity of access allowing work to be carried out on a single mobilization
- Exposed and opened cleanouts at ground level
- Standby time chargeable at \$100.00 per hour should delays not of our making delay progress e.g. bad weather, access problems, high leachate flow levels etc.
- Current technology limitations may preclude the use of tractor video systems (range 1000') in 8" lines restricted to cleanout access. If a push video system has to be used, we will be limited to a maximum 500' from each point of entry.
- Our equipment and procedures fully meet OSHA and DEP requirements. In particular our video inspection equipment is certified Class 1, Division 1, Groups C & D (i.e. explosion proof). This is required in methane piping per OSHA.
- All pricing subject to both jetting and video work being carried out by this company.
- Pricing is unrelated to actual or achieved footages but on the number of setups required and the time we anticipate being on site.
- Payment : net 30 days -

Regards,



Next 13c

copy

2002 ANNUAL LEACHATE WATER BALANCE SUMMARY

hailed

MONTH	RAINFALL (inches)	TOTAL LEACHATE COLLECTED	GALLONS STORED IN TANKS (NET DIFFERENCE)	TOTAL LEACHATE TREATED	BALANCE
JANUARY, 2002	2.10	310,335	72,991	236,385	959
FEBRUARY, 2002	8.50	511,504	2,255	509,850	-601
MARCH, 2002	0.00	313,148	24,384	347,625	-10,093
APRIL, 2002	4.40	467,979	21,710	447,300	-1,031
MAY, 2002	2.80	653,515	19,874	665,980	7,409
JUNE, 2002	12.00	706,041	19,401	670,950	15,690
JULY, 2002	13.70	1,365,697	419	1,121,506	244,610
AUGUST, 2002	3.60	721,328	50,548	795,200	-23,324
SEPTEMBER, 2002	10.00	718,690	37,649	680,890	151
OCTOBER, 2002	5.00	823,036	54,114	874,720	2,430
NOVEMBER, 2002	6.85	603,039	55,110	575,050	-27,121
DECEMBER, 2002	4.90	381,228	43,365	469,420	-44,828
TOTAL FOR 2002	73.85	7,575,540	401,820	7,394,876	164,252

Next HA

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CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long - Term Care	BY LEK	DATE 3/25/03
Revised	CHECKED ECC	DATE 4/16/03

b. Leachate Collection/Treatment System Operation AMB 4/24/03

~~Accounted for in Administrative cost & Leachate
System operation~~

Revised: LEK 7/16/03

Checked: ..

Estimate the manhole system should be cleaned
out 1 manhole/year.

Per the CBI Quote (Sheet 14B)

$$\begin{aligned} & \$135/\text{hour for 3 Manhole} \\ & = \$45/\text{manhole-hour} \end{aligned}$$

Estimate that it takes 4 hours to clean 1 manhole

$$\begin{aligned} \text{Cost} &= \frac{\$45}{\text{man-hole-hour}} \times 4 \text{ hours} \times 1 \text{ Manhole} \\ &= \$180/\text{year} \end{aligned}$$



Cliff Berry, Incorporated
Environmental Services

Cliff Berry, Inc.
5218 St. Paul St.
Tampa, FL 33619
(813) 626-6533

Hardee County
Department of Solid Waste
Material Recovery Facility
Animal Services
685 Airport Road
Wauchula, FL 33873-8663

Attn: Janice Williamson

VIA FACSIMILE

14 April 2003

Re: Vacuum services.

Dear Ms. Williamson,

Cliff Berry, Inc. is please to quote you with a rate of \$135/hour for a 27" vacuum truck, operator and technician to clean out three manholes to facilitate the jetting of the leachate lines. The following should be noted;

- 1) Your facility will provide any lockout/tagout of electrical, mechanical, pumps, valves or any other device, which may impede the safety of the job evolution.
- 2) The attached rates are based on a Monday thru Friday 0800 - 1700 workweek. If weekend work and/or second/third shift work is required and authorized, overtime rates will be charge at one and a half straight time rates and double on observed government holidays.
- 3) CBI will be permitted to leave all waste on site.

Thank you for the opportunity to submit this quote and we look forward to conducting business with you. If you have any questions, please do not hesitate to contact me.

Regards,

Dan Stone
Tampa Facility Manager
Cliff Berry, Inc.

Previous Sheet 14A
Next Sheet 15A

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

7. Maintenance of Groundwater Monitoring Wells Revised 9/28/03

Ambs 9/29/03

Assume 1 wellhead needs redevelopment per year

4 hours of a technicians time @ \$45/hr = 4 hr * \$45/hr = \$180

Replace 1 well every five years

Cost to install 1 groundwater monitoring well = \$925

Source: Universal Engineering Sciences (Sheet 15B & C)
November 5, 2001

2003 Cost = $\frac{\$925}{\text{well}} \times 1.04 = \$962/\text{well}/5\text{ years}$

SCS ENGINEERS

SHEET 16 OF

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

8 Gas System Maintenance

Revised 9/28/03

AMS 9/29/03

Estimate that one well need repaired every year.

Cost

SCS Field Services

Requires 1 day of a technicians time @ \$45/hr = 8 hr x $\frac{\$45}{hr}$ = \$360

Mat'l to repair well = \$100

Repair Cost = \$460

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SCS ENGINEERS

SHEET 17 OF _____

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

9. Landscape

Revised 9/20/03

AMB 9/29/03

Mowing 6 times per year

Mowing Area = 16.7 acres \times 6 = 100 acres

Mowing Area = 100 acres

Cost

Per Janice Williamson & Hardee County Public Works

\$ 12,150 - to mow 6 times a year
year

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CLIENT Hndee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

10. Erosion Control & Cover Maintenance

Revised 9/28/03

AMB 9/29/03

Estimate 0.25 acre erosion washout w/ 500sf (50sf/yr) geosynthetic liner

• Sod Cost

FDOT 2001 Cost for Bahia Sod

Item 575-11 \$1.13/sy

$$2003 \text{ Cost} = \$1.13/\text{sy} \times 1.04 = \$1.18/\text{sy}$$

$$0.25 \text{ acre} \times \frac{43,560 \text{ sf}}{\text{acre}} \times \frac{\text{sy}}{9 \text{ sf}} = 1210 \text{ sy}$$

• Geosynthetic Repair

Use 125% of installed cost

$$40 \text{ mil installed cost} = \$3.21/\text{sy} \text{ (see Closing Costs, Sheet 2A)}$$

$$\frac{\$3.21}{\text{sy}} \times 1.125 = \$3.61/\text{sy}$$

• Regrading will be done by on-site technician (see Administrative Item 14)

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

11. Stormwater Management System Maintenance

Revised 9/28/03

The maintenance of the stormwater management system has been covered under items 9 & 10 of the long-term care plan. These two items address any mowing or earthwork required to maintain the stormwater conveyances.

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09109033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

12 Security System Maintenance

Revised 9/28/03

A.M.B 9/24/03

Estimate 50 LF of fence requires repair or replacement

Cost

FOOT Contract History 2001

Item 550-2-7 8' Type B Fence \$20.70/LF

$$2003 \text{ Cost} = \$20.70/\text{LF} \times 1.04 = \$21.53/\text{LF}$$

Replace 1 gate every 5 years

Cost

2002 RS Means Site Work & Landscape Data

02820 528 5010 Gate 8' high, 20' opening \$1475/gate

$$2003 \text{ Cost} = \$1475/\text{gate} \times 1.02 = \$1505/\text{gate} / 5 \text{ years}$$

02800 | Site Improvements and Amenities

2 SITE CONSTRUCTION

02820 Fences & Gates		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	2002 BARE COSTS				TOTAL INCL O&P
						MAT.	LABOR	EQUIP.	TOTAL	
500	0200 Galv. steel, 12 ga., 2" x 4" mesh, posts 5' O.C., 3' high	B-80	300	.107	L.F.	1.62	2.75	1.87	6.24	8.01
	0300 5' high		300	.107		2.16	2.75	1.87	6.78	8.61
	0400 14 ga., 1" x 2" mesh, 3' high		300	.107		1.73	2.75	1.87	6.35	8.11
	0500 5' high		300	.107		2.38	2.75	1.87	7	8.99
	1000 Kennel fencing, 1-1/2" mesh, 6' long, 3'-6" wide, 6'-2" high	2 Clab	4	4	Ea.	270	94		364	445
	1050 12' long		4	4		325	94		419	500
	1200 Top covers, 1-1/2" mesh, 6' long		15	1.067		55	25		80	99.5
	1250 12' long		12	1.333		88	31.50		119.50	145
	1300 For kennel doors, see division 08344-350									
	4500 Security fence, prison grade, set in concrete, 12' high	B-80	25	1.280	L.F.	22	33	22.50	77.50	99.5
	4600 16' high		20	1.600		26.50	41	28	95.50	124
	5300 Tubular picket, steel, 6' sections, 1-9/16" posts, 4' high		300	.107		16.80	2.75	1.87	21.42	24.5
	5400 2" posts, 5' high		240	.133		23.50	3.43	2.33	29.26	33.5
	5600 2" posts, 6' high		200	.160		26.50	4.12	2.80	33.42	38.5
	5700 Staggered picket 1-9/16" posts, 4' high		300	.107		15.15	2.75	1.87	19.77	23
	5800 2" posts, 5' high		240	.133		25	3.43	2.33	30.76	35.5
	5900 2" posts, 6' high		200	.160		26	4.12	2.80	32.92	38
	6200 Gates, 4' high, 3' wide	B-1	10	2.400	Ea.	146	58		204	251
	6300 5' high, 3' wide		10	2.400		189	58		247	298
	6400 6' high, 3' wide		10	2.400		195	58		253	305
	6500 4' wide		10	2.400		227	58		285	340
528	0010 FENCE, CHAIN LINK INDUSTRIAL, schedule 40									
	0020 3 strands barb wire, 2" post @ 10' O.C., set in concrete, 6' H									
	0200 9 ga. wire, galv. steel	B-80	240	.133	L.F.	7.80	3.43	2.33	13.56	16.
	0300 Aluminized steel		240	.133		10.05	3.43	2.33	15.81	18.
	0500 6 ga. wire, galv. steel		240	.133		12.65	3.43	2.33	18.41	21.
	0600 Aluminized steel		240	.133		14.50	3.43	2.33	20.26	24.
	0800 6 ga. wire, 6' high but omit barbed wire, galv. steel		250	.128		12.25	3.30	2.24	17.79	21.
	0900 Aluminized steel		250	.128		17.15	3.30	2.24	22.69	26.
	0920 8' H, 6 ga. wire, 2-1/2" line post, galv. steel		180	.178		19.95	4.58	3.11	27.64	32.
	0940 Aluminized steel		180	.178		24.50	4.58	3.11	32.19	37.
	1400 Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel		10	3.200	Ea.	98.50	82.50	56	237	297
	1500 Aluminized steel		10	3.200	"	120	82.50	56	258.50	320
	2000 5'-0" high fence, 9 ga., no barbed wire, 2" line post,									
	2010 10' O.C., 1-5/8" top rail									
	2100 Galvanized steel	B-80	300	.107	L.F.	6.50	2.75	1.87	11.12	13
	2200 Aluminized steel		300	.107	"	7.85	2.75	1.87	12.47	14
	2400 Gate, 4' wide, 5' high, 2" frame, galv. steel		10	3.200	Ea.	108	82.50	56	246.50	310
	2500 Aluminized steel		10	3.200	"	119	82.50	56	257.50	320
	3100 Overhead slide gate, chain link, 6' high, to 18' wide		38	.842	L.F.	97	21.50	14.75	133.25	157
	3105 8' high		30	1.067		97	27.50	18.70	143.20	170
	3108 10' high		24	1.333		81	34.50	23.50	139	167
	3110 Cantilever type		48	.667		41	17.15	11.65	69.80	84
	3120 8' high		24	1.333		59.50	34.50	23.50	117.50	144
	3130 10' high		18	1.778		70.50	46	31	147.50	182
	5000 Double swing gates, incl. posts & hardware									
	5010 5' high, 12' opening	B-80	3.40	9.412	Opng.	290	242	165	697	870
	5020 20' opening		2.80	11.429		395	294	200	889	1,100
	5060 6' high, 12' opening		3.20	10		490	258	175	923	1,125
	5070 20' opening		2.60	12.308		675	315	216	1,206	1,475
	5080 8' high, 12' opening		2.13	15.002		760	385	263	1,408	1,725
	5090 20' opening		1.45	22.069		1,000	570	385	1,955	2,400
	5100 10' high, 12' opening		1.31	24.427		865	630	430	1,925	2,375
	5110 20' opening		1.03	31.068		1,300	800	545	2,645	3,250
	5120 12' high, 12' opening		1.05	30.476		1,275	785	535	2,595	3,175

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SCS ENGINEERS

SHEET 21A OF

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.03
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

13. Utilities

Revised 9/28/03

AMR 9/29/03

Estimate at \$500/year for leachate pumps & other electrical requirements

Next 21B

Lindsey Eldridge

From: Williamson, Janice
[janice.williamson@hardeecounty.net]

Sent: Friday, April 11, 2003 10:01 AM

To: lkennelly@scsengineers.com

Subject: Requested Information

Good Morning Lindsey:

The Accounting Department has estimated an average of \$500 per year for utilities, for the leachate pumps and loading station.

Thanks and have a great weekend.
Janice

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Sheet 21B

SCS ENGINEERS

SHEET 22 OF

CLIENT Harder	PROJECT Permit Renewal	JOB NO. 09199033.03
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 7/16/03

14 Administrative

Revised 9/28/03
AMB 9/29/03

P.E. Supervisor - Quarterly Site Visit @ \$98/hr

$$\frac{4 \text{ hrs}}{\text{visit}} \times \frac{4 \text{ visits}}{\text{yr}} \times \frac{\$98}{\text{hr}} = \$1568/\text{yr}$$

On-Site Technician - 2 days/month @ \$45/hr

$$\frac{8 \text{ hr}}{\text{day}} \times \frac{2 \text{ day}}{\text{month}} \times \frac{12 \text{ month}}{\text{yr}} \times \frac{\$45}{\text{hr}} = \$8640/\text{yr}$$

END

ATTACHMENT D

**REVISED PERMIT DRAWINGS
(PROVIDED SEPARATELY)**