Waste Management of Louisiana, LLC
29375 Woodside Drive
Walker, Louisiana 70785

RECEIVED

MAR 15 2006

WATER & WASTE PERMITS DIVISION
SOLID & HAZARDOUS WASTE SECTION

March 15, 2006

Dr. Chuck Carr Brown, Assistant Secretary
Louisiana Department of Environmental Quality
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

Re: Supplemental Operational Information
Emergency Disaster Site Request
Proposed Chef Menteur C &D Disposal Facility

Dear Dr. Brown:

Waste Management of Louisiana, LLC (Waste Management) is pleased to provide supplemental operational information for the proposed Chef Menteur C &D Disposal Facility (Chef Menteur Disposal) resulting from discussions with the Department during their review of the previously submitted request of March 1, 2005. This information consists of additional engineering analyses, as well as some editorial clarifications to some of the previously submitted operational information. If you have any questions or require clarification, please call me at 225/268-2895.

Sincerely,

Amanda Olson

Amanda Olson
Market Area Engineer

WASTE MANAGEMENT

Chef Menteur Disposal
New Orleans, Louisiana

Emergency Disaster Cleanup Site Request
Supplemental Operational Information

Volume I of I

MARCH 2006

ATTACHMENT 2

Interim Operation Plan

INTERIM OPERATIONS PLAN

FOR

CHEF MENTEUR C&D DISPOSAL FACILITY

ORLEANS PARISH, LOUISIANA

March 2006

INTERIM OPERATION PLAN
CHEF MENTEUR C&D DISPOSAL FACILITY

OPERATED BY:
WASTE MANAGEMENT OF LOUISIANA, LLC

MARCH 2006

The operation of the disposal facility governed by the emergency authorization will comply with the following requirements:

1. The facility will provide adequate supervision and security of the site to control disposal of materials, allowing disposal of construction/demolition debris, woodwaste, yard trash and exempt materials as defined by LAC 33:VII.115 and as authorized for the site. Maximum operating hours will be 5:00 A.M. to 8:00 P.M., Monday-Sunday, and may be decreased if the volumes are reduced with time. Security is provided with a perimeter fence that encompasses the property boundary on the north and west borders. The facility is bounded by Lagoon Maxent on the east and a railroad to the south. A site plan presenting the overall facility boundaries and structures is presented on Figure 1.

   Disposal of unauthorized waste will be strictly prohibited and prevented by load inspection. A daily log of wastes received at the facility will be maintained. Attachment 1 provides an example of the daily waste receipt log. Load inspections will be performed at the facility entrance.

2. A sign will be posted at the entrance to the facility listing acceptable wastes and prohibited wastes including, but not limited to, liquid waste, volatile waste, hazardous waste, flammable waste, infectious waste, domestic waste, friable asbestos and putrescible waste (garbage).

3. Personnel will maintain a daily inventory documenting each truck load of waste received and each truck load rejected at the gate. Such documentation will include some form of identification of source of generation, transporter, the approximate volume of waste received, and a general description of the waste. An example of the inventory log is presented as Attachment 1. Also, a reason for rejecting a load of waste will be documented in the daily log. A separate rejection log will be maintained at the facility and will include the information presented on Attachment 2.

4. All records will be maintained on site and available for inspection by representatives of the Department.

5. Wastes shall be dumped under supervision in the smallest practical area, spread and compacted daily. The wastes shall be deposited in such a manner as to allow daily compaction of the waste. The wastes shall be covered with twelve (12") inches of

silty clays at least every fourteen (14) days, if possible. Records will be maintained to substantiate compliance with this requirement.

6. Unauthorized waste will be segregated and placed in a container as required by LAC 33:VII.703. The unauthorized waste will be removed at least every seven (7) days, if possible. Records documenting removal and disposal of unauthorized waste as required here will be maintained for inspection.

7. Access to the facility shall be by all weather roads that can meet the demands of the facility. Roads within the facility shall be maintained as all weather roads or the facility will provide an operational change to implement during wet weather conditions as well as a means of dust control. The facility is equipped with a partial concrete access road from Chef Menteur Highway to the disposal location. Additional internal haul roads will be provided to allow trucks into the disposal cells to deposit the wastes.

8. An annual report will be submitted to the administrative authority indicating quantities and types of solid wastes (expressed in wet-weight tons per year), received from generators, during the reporting period. All calculations used to determine the amounts of solid waste received for disposal during the annual reporting period will be submitted to the administrative authority. Annual reports will be submitted to the administrative authority by August 1st of each reporting year.

9. Open burning shall not be practiced unless authorization is first obtained from the administrative authority and any other applicable federal, state and local authorities. Should any fire start, procedures will be initiated immediately to control and to extinguish it.

10. No solid waste will be deposited in standing water. A Notice of Intent for coverage under the General Permit for a Construction and Demolition Debris facility will be submitted.

11. Unapproved salvaging will be prohibited and prevented. Scavenging shall be prevented.

12. Litter both within the site and along the entrance to the site shall be controlled by use of litter fences and/or regular policing of the site.

13. Adequate equipment and personnel must be provided to achieve the operational requirements of the facility as stated here and in LAC 33:VII.721. Minimum equipment shall consist of a compactor, a dozer, and excavator. Backup equipment shall be provided in the event of equipment breakdown. Personnel will be adequately trained in the recognition of unauthorized materials, segregation procedures, and emergency procedures. As a minimum, the site will be manned with a site superintendent, receiving clerk, and 2 equipment operators. Additional manpower will be provided as necessary to manage the operations.

14. In the event of unauthorized disposal or deposit at the facility the Department must be notified immediately.

15. Final compacting and grading will be completed before capping. Final cover will be completed within 90 days after final grades are reached. The side slope should be no steeper than 4(H):1(V) (for above ground) and must have a minimum of a 4 percent slope on the top of the final cap. The final cover must consist of a minimum of 24 inches of silty clays, or Department approved equivalent and 6 inches of topsoil sufficient for supporting vegetative growth.

16. After closure inspection and approval, ground cover will be planted to prevent erosion and return the facility to a more natural appearance.

17. Parish mortgage and conveyance records will be updated as required by the Louisiana Statutes and state regulations. A certified true copy will be submitted as required. A copy of the public notice and final closure records are presented as Attachments 3 and 4, respectively.

18. The integrity of the grade and cap will be maintained for no less than three years after the date of administrative authority's approval of the closure of the facility. Annual reports concerning the integrity of the cap will be submitted for a period of three years after closure.

Attachment 1

Daily Waste Load Inventory Log

Date	Time	Truck ID No	Origin	Volume

Attachment 2

Waste Load Rejection Log

Date	Time	Truck ID No.	Origin	Reason Rejected	Inspector

Attachment 3

PUBLIC NOTICE

I, _____, of _____, received authorization from the Louisiana Department of Environmental Quality, for the operation and closure of an emergency authorized construction and demolition debris disposal site. The site contains approximately _____tons of _____. It is located in Section _____,Township _____, Range _____, in _____ Parish, Louisiana.

Closure activities commenced on _____ and were completed on _____.

Attachment 4

DOCUMENT TO BE FILED IN THE PARISH RECORDS UPON FINAL CLOSURE OF A SOLID WASTE DISPOSAL FACILITY

_____ (Name of authorized facility owner or owner of authorization to operate) hereby notifies the public that the following described property was used for the disposal of solid waste. The site was closed on _____ (date) in accordance with the Louisiana Administrative Code, Title 33, Part VII. Inquiries regarding the contents of the facility may be directed to _____(name of person with knowledge of the contents of the facility) at

_____ (address of person with knowledge of the content of the facility).

Property Description:
(Provide the specific description of the location of the facility)

_____
(Signature of Person Filing Parish Record)

_____
(Typed Name & Title of Person Filing Parish Record)

(A true copy of the document certified by the parish clerk of court must be sent to the Louisiana Department of Environmental Quality, Office of Environmental Compliance, Enforcement Division, Post Office Box 4312, Baton Rouge, Louisiana 70821-4312)

ATTACHMENT 4

Site Development Plans

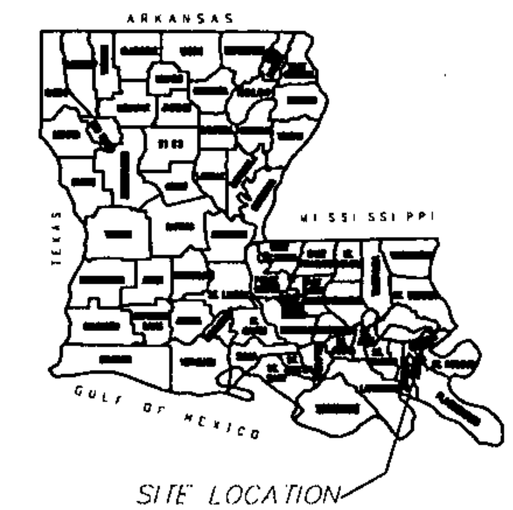
SHEET
1

PERMIT DRAWINGS FOR

CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH

PROJECT NO. 51102



VICINITY MAP
SCALE: N. T. S.

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	EXISTING SITE PLAN
3	SITE EXCAVATION GRADING PLAN
4	SITE FINAL CONTOUR GRADING PLAN
5	LANDFILL CROSS SECTIONS
6	MISCELLEANOUS DETAILS

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

TITLE SHEET
CHEF MENTEUR
C & D LANDFILL

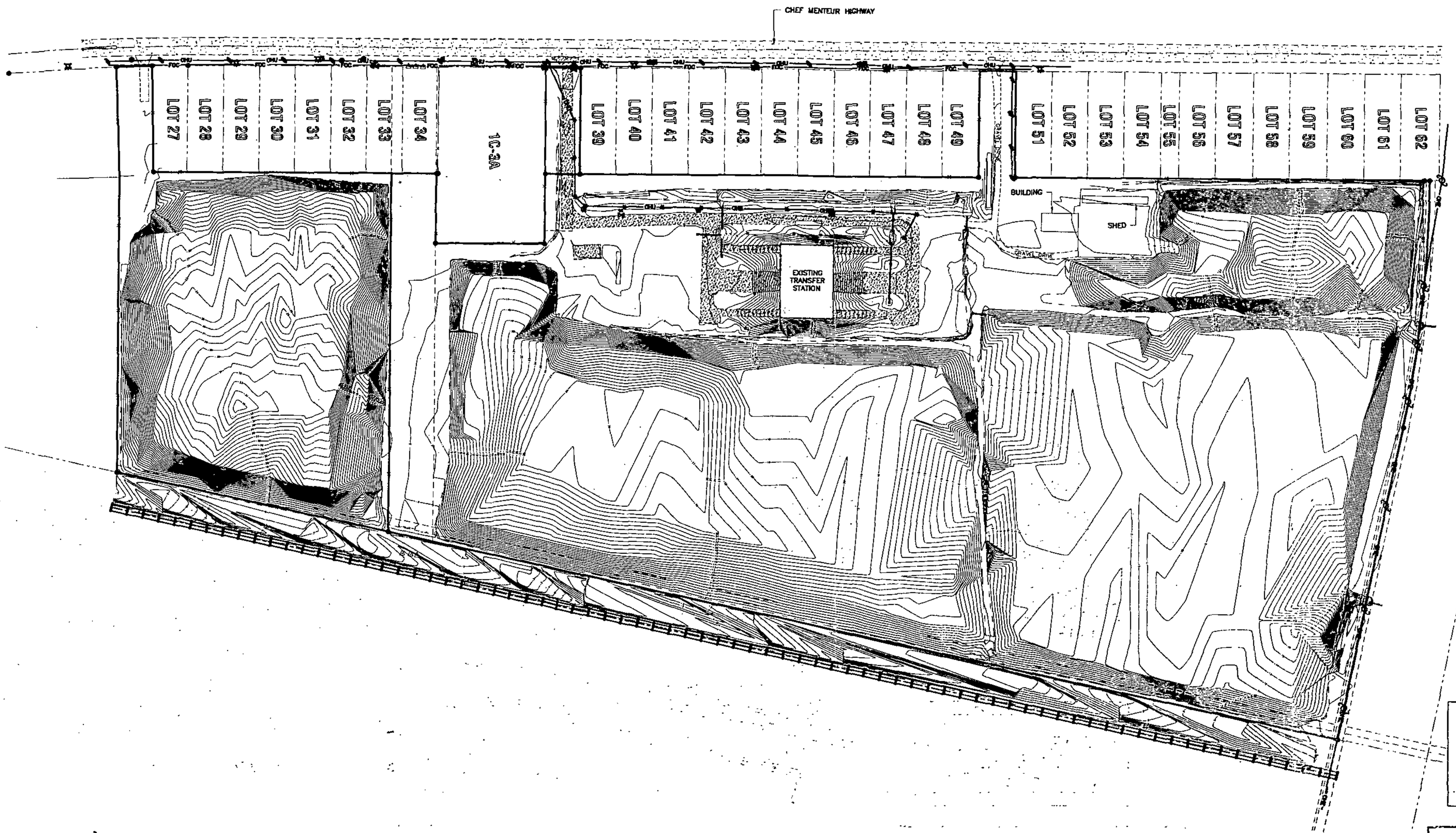
ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DATE	DESCRIPTION REVISIONS	BY

DESIGN'D	DRAWN	CHECK'D	APPROV'D
DLS	DLS		

SHEET
2



STATE OF LOUISIANA
DALE L. STEIB
REG. No 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE
140 0 70 140 280 560
(IN FEET)
1 inch = 140 ft
UNIFORM SCALE FOR READABILITY

DATE	DESCRIPTION REVISIONS	BY

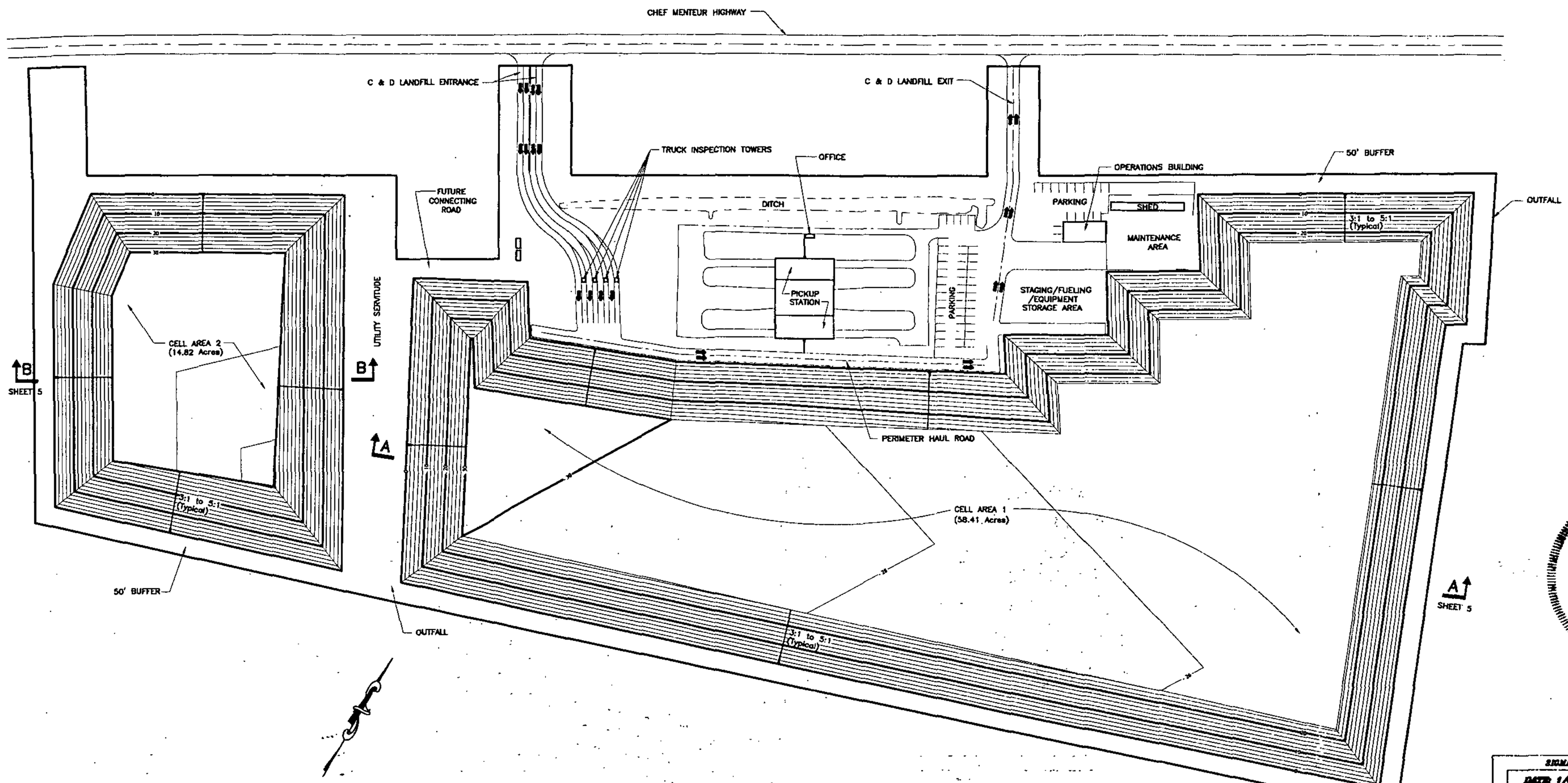
EXISTING SITE PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

SHEET 3



STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

NOTE: THE ELEVATIONS SHOWN WITHIN THE CELL AREAS ARE AT MAXIMUM DEPTHS. THE SIDE SLOPES AND BASE ELEVATIONS MAY DIFFER FROM THESE DEPENDING ON SOIL CONDITIONS.

SIGMA ENGINEERS & CONSTRUCTORS
DATE 1/06
ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE
140 0 70 140 280 560
(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

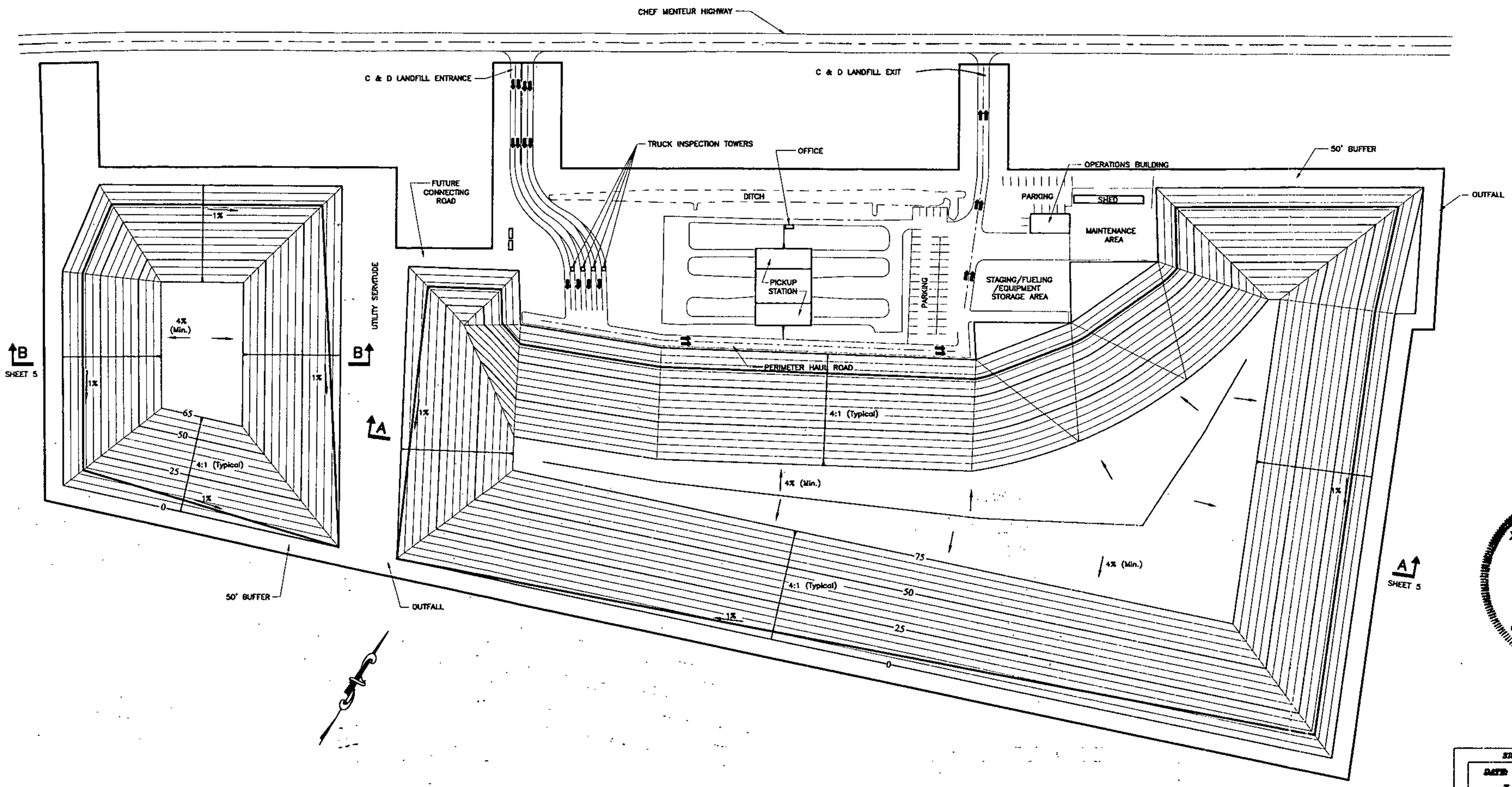
DATE	DESCRIPTION REVISIONS	BY

SITE EXCAVATION GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		



STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION REVISIONS	BY

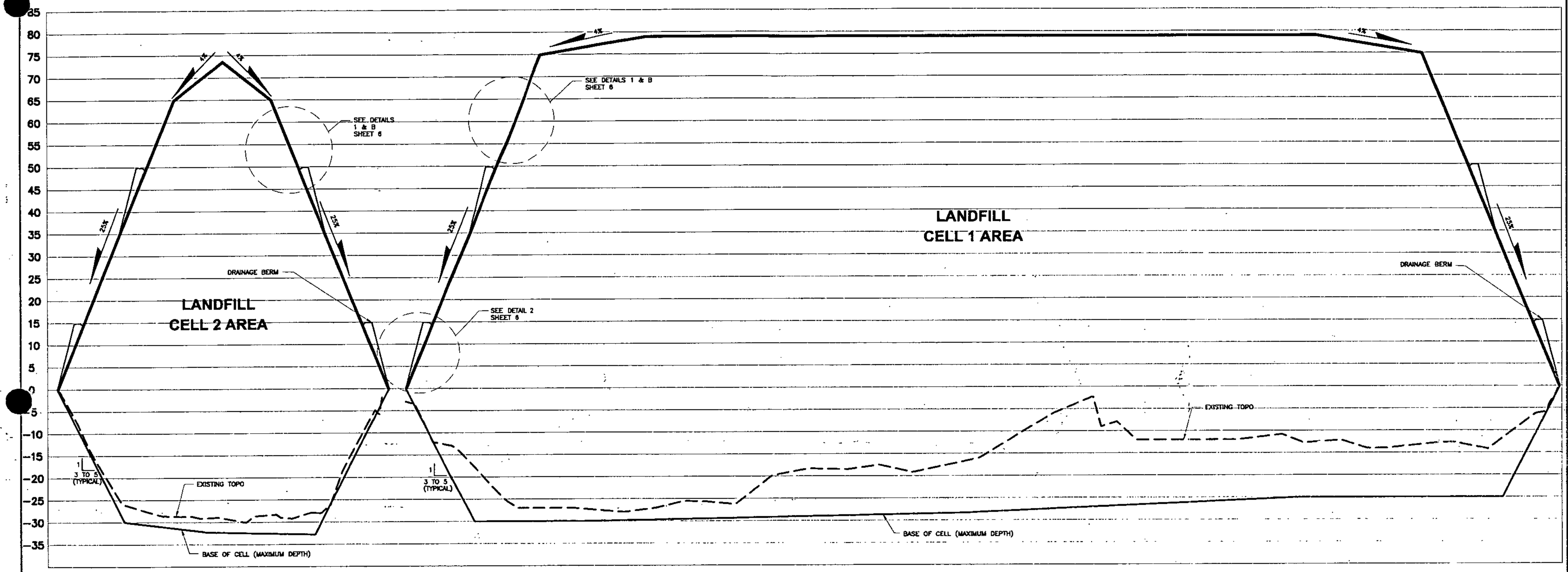
SITE FINAL CONTOUR GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

SHEET 5



CROSS SECTION B-B'

HORIZ. 0' 50' 100' 100'
VERT. 0' 10' 20'
SCALE

CROSS SECTION A-A'

HORIZ. 0' 50' 100' 100'
VERT. 0' 10' 20'
SCALE

NOTE: THE ELEVATIONS SHOWN WITHIN THE CELL AREAS ARE AT MAXIMUM DEPTHS. THE SIDE SLOPES AND BASE ELEVATIONS MAY DIFFER FROM THESE DEPENDING ON SOIL CONDITIONS.

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06
ISSUED FOR PERMITTING PURPOSES ONLY

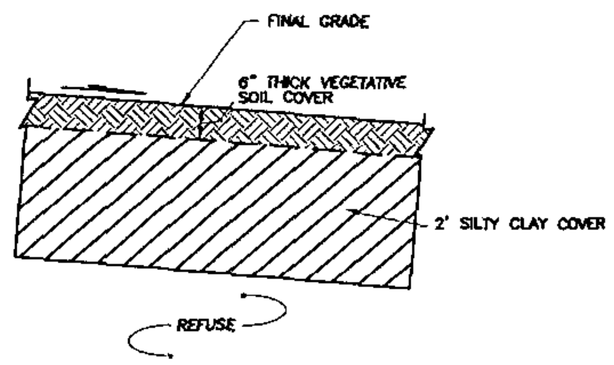
DATE	DESCRIPTION REVISIONS	BY

LANDFILL CROSS SECTIONS
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

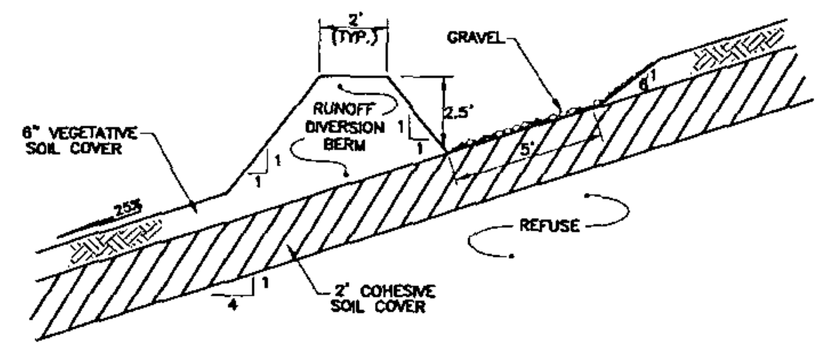
WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		



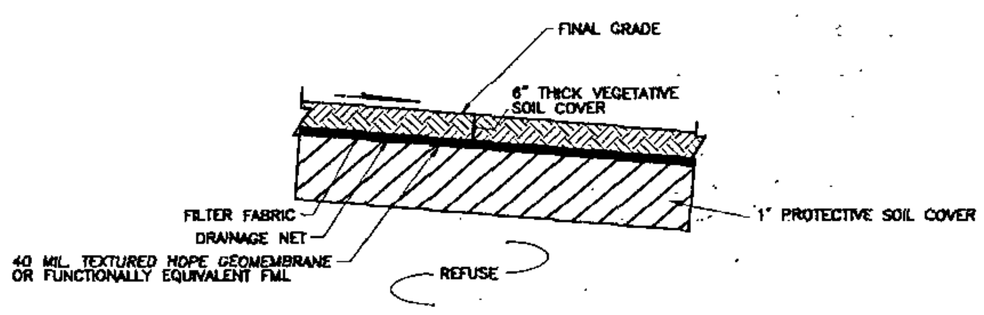
FINAL COVER SECTION (4% & 25% SLOPE) 1

NTS



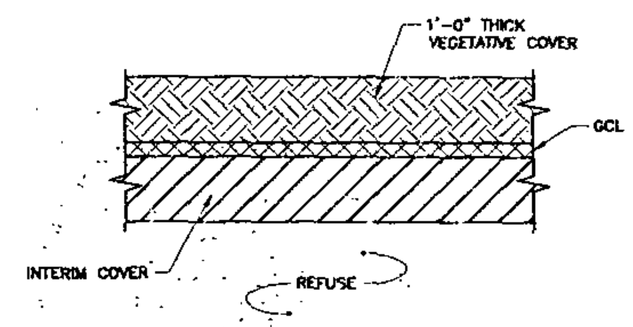
CROSS-SECTION THOUGH PROTECTIVE COVER DIVERSION BERM 2

NTS



ALTERNATE FINAL COVER SECTION (4% SLOPE) 3

NTS



ALTERNATE FINAL COVER SECTION (4% & 25% SLOPE) 4

NTS

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

MISCELLANEOUS DETAILS
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DATE	DESCRIPTION REVISIONS	BY

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

ATTACHMENT 5

Stormwater Management Plan

SHEET 1

CHEF MENTEUR HIGHWAY

C & D LANDFILL ENTRANCE

C & D LANDFILL EXIT

TRUCK INSPECTION TOWERS

FUTURE CONNECTING ROAD

FUELING AREA

DITCH

OPERATIONS BUILDING

PARKING

SHED

MAINTENANCE AREA

STORMWATER (TO BE PUMPED)

OUTFALL

PICKUP STATION

PARKING

STAGING/FUELING /EQUIPMENT STORAGE AREA

UTILITY SERVITUDE

B

SHEET 5

A

PERIMETER HAUL ROAD

TRUCK INSPECTION TOWERS

4:1 (Typical)

4% (Min.)

1%

65

50

25

0

75

STORMWATER MANAGEMENT BERM (CONSTRUCTED AND RELOCATED AS WORKING FACE PROGRESSES)

CELL 1
BASE GRADE

SHEET 5

OUTFALL

NOTE:
CELL 2 AREA NOT NECESSARILY CLOSED BEFORE CELL 1 AS SHOWN.

NON-CONTACT STORMWATER COLLECTION POINT

WORKING FACE

STORMWATER (TO BE PUMPED)

LEGEND

— FLOW DIRECTION

SIGMA ENGINEERS & CONSTRUCTORS

DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION	BY
	REVISIONS:	

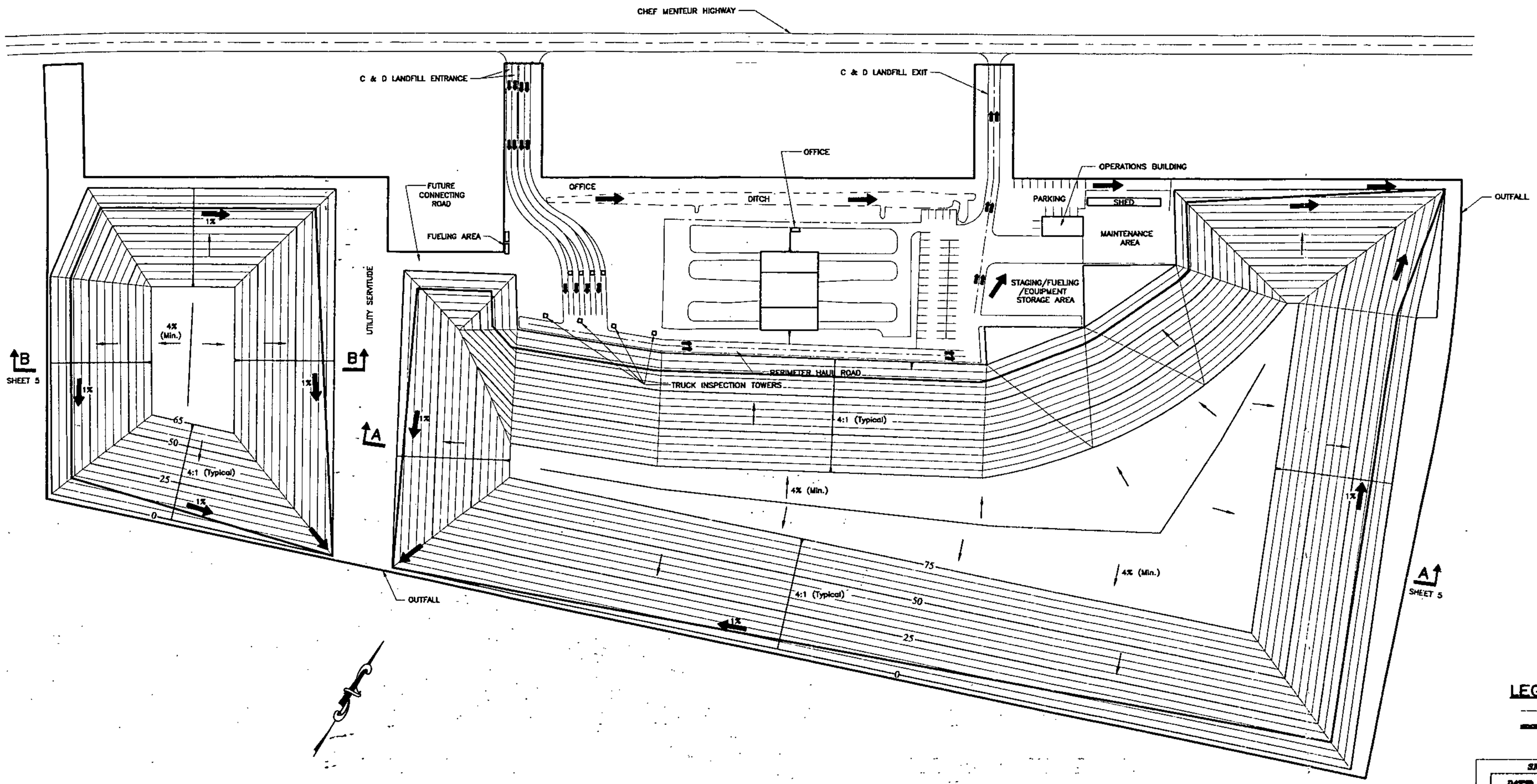
STORMWATER MANAGEMENT PLAN
INTERIM CASE
CHEF MENTEUR C & D LANDFILL

ORLEANS PARISH — FEBRUARY, 2006

WASTE MANAGEMENT

SIGMA ENGINEERS & CONSTRUCTORS
JOB NO. [illegible]

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		



LEGEND

- FLOW DIRECTION

SIGMA ENGINEERS & CONSTRUCTORS

DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION	BY
	REVISIONS	

STORMWATER MANAGEMENT PLAN
CLOSED CASE
CHEF MENTEUR C & D LANDFILL

ORLEANS PARISH FEBRUARY, 2006

WASTE MANAGEMENT

SIGMA ENGINEERS & CONSTRUCTORS JOB NO. [illegible]

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

CALCULATION SHEET

Page __/ __

Client: Waste Management
PROJECT: Chef Landfill

SUBJECT: Surface Water Management Hydrograph Development

Project No. 51102
Prepared by: DS Date: 2/06
Reviewed by:__ Date:
Approved by:__ Date:

Objective: Determine the peak flowrates for the 25-year 24-hour storm for the watersheds and sub-watersheds (North and South landfill cap sections) at Chef Landfill. Use the Tabular Hydrograph Method from TR-55 by the USCS "Urban Hydrology Small Watersheds" and QUICK TR-55 by Haestad Methods to determine the peak flows for each subarea and the composite peak flow.

Methodology: Divide the landfill into sub-watersheds for the North and South watersheds and determine the distances for the times of concentration (Tc) and times of travel (Tt). Determine the runoff curve number (RCN) using Table 2-2c of TR-55. The program will calculate the Tc, Tt and RCN using methods developed by the USCS. Develop files for Tc, Tt and the Runoff Curve number. Merge the files created for Tc, Tt and RCN into watershed files (*.mop), then develop the hydrograph file for each watershed area:

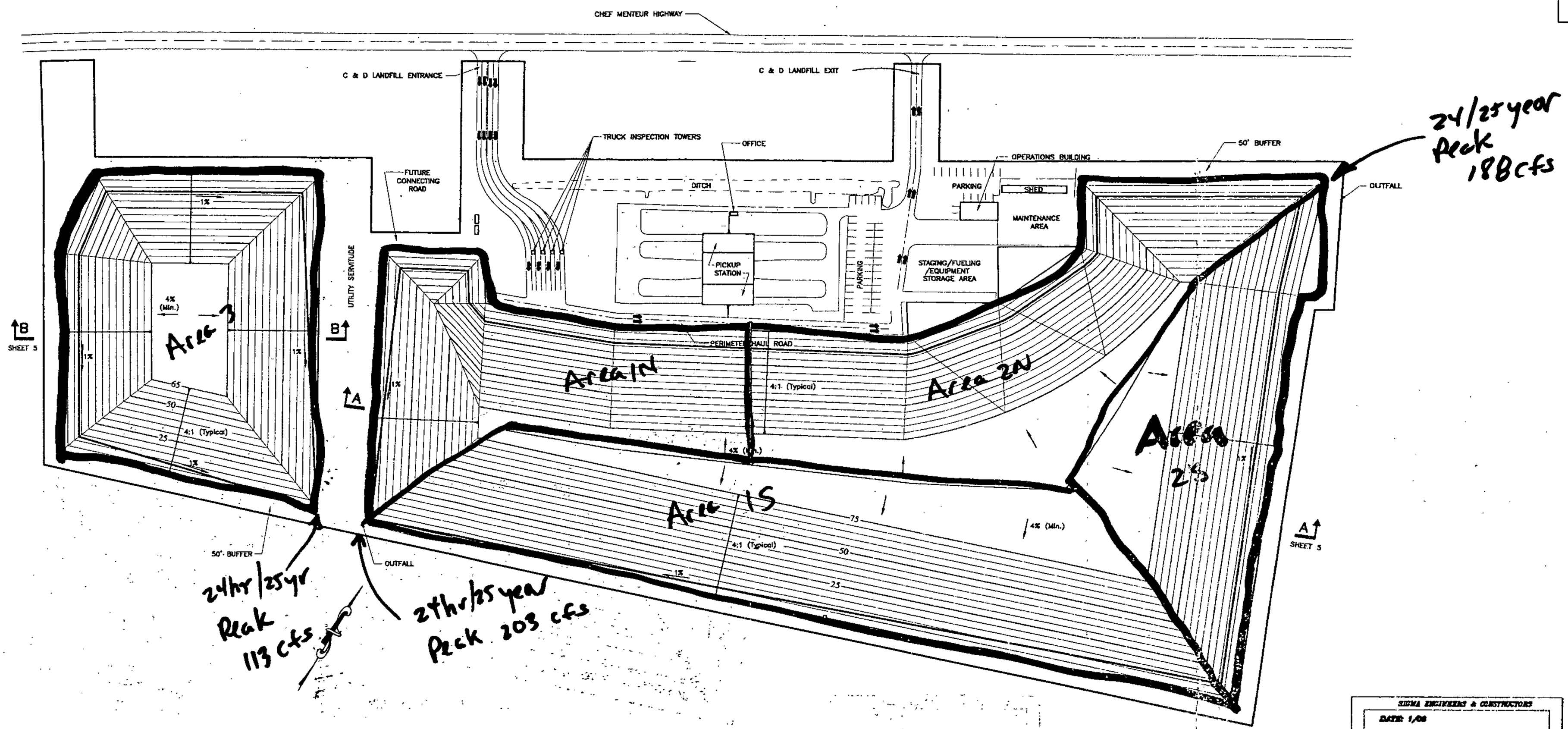
Non-contact storm water holding/settling pond - Area 1 (North and South, Cell 1)
Area 2 (North and South, Cell 1)
Area 3 (Cell 2)

Data and Assumptions: Tc=s and Tt=s as presented in the computer printouts: (see Attachment 2-4)
25-year 24-hour storm – 12.00 inches (see Attachment 5)
Runoff Curve Number: Open Space, 75%-100% coverage,
for Hydrologic Soil Group D = 80 (see Attachment 5)
Areas - as depicted (see Attachment 1)
Roughness Coefficient for sheet flow n = 0.24 (see Attachment 5)
Roughness Coefficient for channel flow n = 0.03 (see Attachment 5)
Landfill cap side slopes at 4% & 25%, sheet flow limited to 300 feet
2-year/24-hour storm – 6.0 inches (attachment 5)

Conclusions: Peak Flows at points were calculated by hydrographs, based on the 24 hr/25 yr 12 inch storm, for each area and is summarized as follows.

Area 1 (North and South, Cell 1) – 203.0 cfs
Area 2 (North and South, Cell 1) – 188.0 cfs
Area 3 (Cell 2) – 113 cfs

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06



SIGMA ENGINEERS & CONSTRUCTORS

DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION REVISIONS	BY

SITE FINAL CONTOUR GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

ATTACHMENT 6

Waste Volume and Soil Balance

SIGMA ENGINEERS & CONSTRUCTORS, INC. ENGINEERING CONSULTANTS	Made By: DLS	Date 1/06	Sheet No. 1 of 2
	Checked By:	Date	Job No. 51102
	Chef Menteur C&D Landfill		
	Landfill Airspace Calculations		

OBJECTIVE: Determine the airspace Volume for the proposed Disposal Area using CADD and hand verified.

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

Calculations:

Base Cell 1

Average elevation (Below grade) = 14

At Elevation 14 the Area = 1,987,652 ft^2 (from CADD)

Average Depth of Base = 28

Volume = 28 ft x 1,987,652 ft^2 = 55,654,256 ft^3

= 2,061,270 yd^3

Cover Cell 1

Average elevation (above grade) = 38

AT Elevation 38 the Area = 1,483,754 ft^2 (from CADD)

Average height of Cover = 76 ft

Volume = 76 ft x 1,483,754 ft^2 = 112,765,304 ft^3

= 4,176,493 yd^3

Total Volume of Cell 1 =

2,061,270 yd^3 + 4,176,493 yd^3 = 6,237,763 yd^3

SIGMA ENGINEERS & CONSTRUCTORS, INC. ENGINEERING CONSULTANTS	Made By: DLS	Date 1/06	Sheet No. 1 of 2
	Checked By:	Date	Job No. 51102
	Chef Menteur C&D Landfill		
	Earthwork Mass Balance		

OBJECTIVE: Determine the Volume Excavation Soils and Compare to the Required Volumes of Soil for all Landfill Operations.

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
7/13/06

Calculations:

Soil Required →

Interium Cover = 720,000 yd^3 (Assumption)

Vegetative Cover =

58.41 acres + 14.82 acres = 73.23 acres = 3,189,912 ft^2

Volume = 3,189,912 ft^2 x 0.5 ft = 1,594,956 ft^3

= 59,072 yd^3

Final Cover (Clays)

58.41 acres + 14.82 acres = 73.23 acres = 3,189,912 ft^2

Volume = 3,189,912 ft^2 x 2ft = 6,379,824 ft^3

= 236,290 yd^3

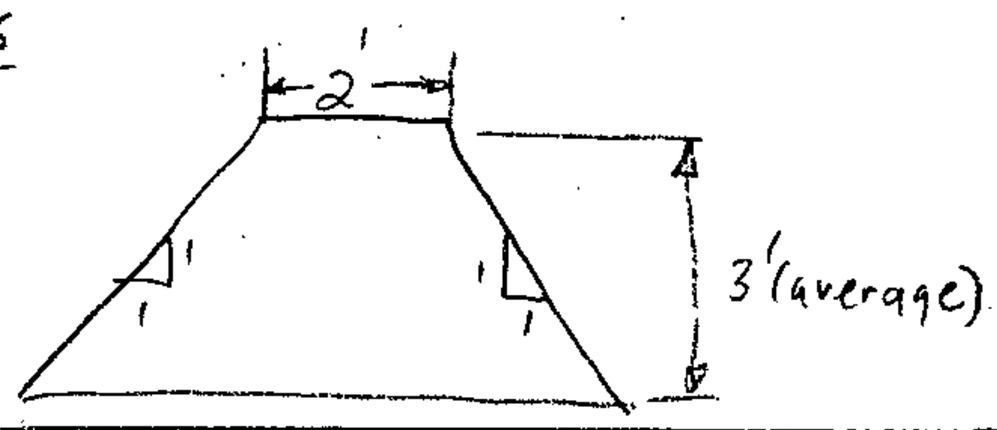
Alternate Final Cover (clays) (If used)

58.41 acres + 14.82 acres = 73.23 acres = 3,189,912 ft^2

Volume = 3,189,912 ft^2 x 1ft = 3,189,912 ft^3

= 118,145 yd^3

Drainage Berms



ATTACHMENT 7

Engineering Calculations

Slope Stability Calculations

CALCULATION SHEET

CLIENT: Waste Management of Louisiana, Inc.
PROJECT: Chef C&D Disposal Facility
SUBJECT: Slope Stability Calculations

PAGE: 1 of 1
PROJECT NO.: 51103
Prepared By: DLS - **Date:** 2/06
Checked By: _____ - **Date:**

OBJECTIVE:

Analyze the long-term slope stability of the final landfill configuration and the short term open case in both the drained and un-drained scenarios.

METHOD OF ANALYSIS:

Use program PCSTABL to find the most critical failure surface and the corresponding factor of safety using the Modified Janbu Method.

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

ASSUMPTIONS:

All the layers and their properties are listed on the attached drawing and output file.

CALCULATIONS:

The program analyzed failure surfaces until a most critical factor of safety was determined. The minimum factor of safety for the long-term condition is 1.212 and for the short-term condition is 1.935. The output file containing the information pertinent to the most critical surface is attached.

Layer No.	Total Unit Weight	Saturated Unit Weight	Cohesion Intercept	Friction Angle (DEG)	Friction Angle (DEG)
1	102	107	230	0	19
2	100	105	230	0	19
3	112	117	420	0	34
4	98	103	230	0	19
5	113	118	420	0	34
6	90	95	0	38.5	40

CONCLUSION:

The PCSTABL program using the stated soil parameters and slope geometry generated a minimum factor of safety of 1.212 and 1.935. No stability problems are anticipated for the design slopes.

Made By: DLS
Checked By:
Date 2/22/06
Date
Sheet No. 1
Job No. 51102

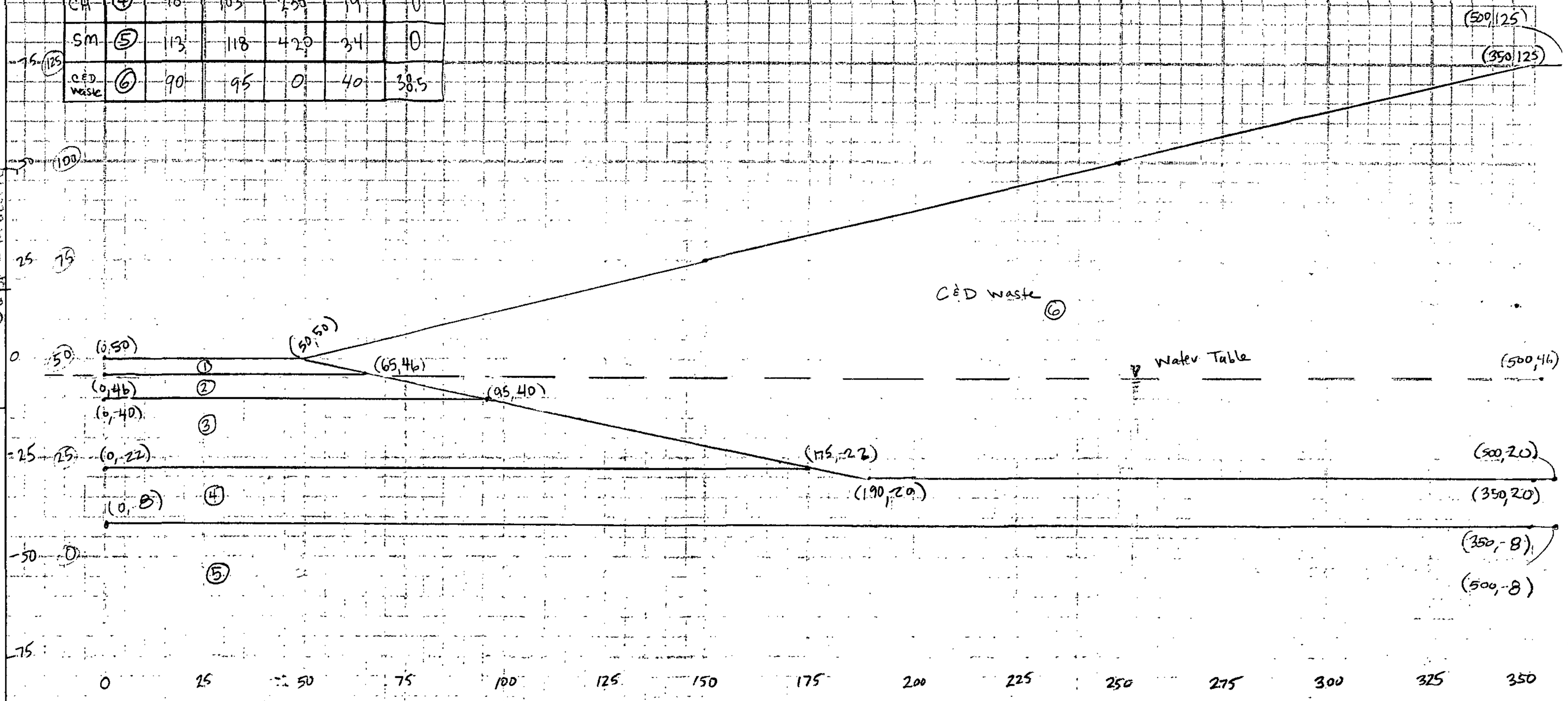
CHEF C&D Disposal Facility
Slope Stability

SIGMA ENGINEERS & CONSTRUCTORS, INC.
ENGINEERING CONSULTANTS

Chef C&D Disposal Facility
Long Term Case (closed)

Soil Type	Layer	moist unit wt (pcf)	Sat unit wt (pcf)	Cohesion Intercept (psf)	Friction angle (deg)	Friction angle (deg)
CH	1	102	107	230	19	0
CH	2	100	105	230	19	0
SM	3	112	117	420	34	0
CH	4	98	103	230	19	0
SM	5	113	118	420	34	0
C&D waste	6	90	95	0	40	38.5

Worst Case



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PROFIL
CHEF SLOPE STABILITY: GLOBAL CIRCULAR FAILURE FOR LONG TERM
12 3
0. 50. 50. 50. 1
50. 50. 350. 125. 6
350. 125. 500. 125. 6
50. 50. 65. 46. 1
0. 46. 65. 46. 2
65. 46. 95. 40. 2
0. 40. 95. 40. 3
95. 40. 175. 22. 3
0. 22. 175. 22. 4
175. 22. 190. 20. 4
190. 20. 500. 20. 4
0. 8. 500. 8. 5
SOIL
6
102. 107. 230. 0. 0. 0. 1
100. 105. 230. 0. 0. 0. 1
112. 117. 420. 0. 0. 0. 1
98. 103. 230. 0. 0. 0. 1
113. 118. 420. 0. 0. 0. 1
90. 95. 0. 38. 0. 0. 1
WATER
1 0.
2
0. 46.
500. 46.
CIRCLE
0
20 20
0. 100. 180. 300.
0. 10. 0. -45.
```

CHEFLT0
** PCSTABL5M **

by
Purdue University

1

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date:
Time of Run:
Run By:
Input Data Filename: cheflt0.in
Output Filename: cheflt0.out

PROBLEM DESCRIPTION CHEF SLOPE STABILITY: GLOBAL CIRCULAR FA
ILURE FOR LONG TERM

BOUNDARY COORDINATES

3 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	50.00	50.00	50.00	1
2	50.00	50.00	350.00	125.00	6
3	350.00	125.00	500.00	125.00	6
4	50.00	50.00	65.00	46.00	1
5	.00	46.00	65.00	46.00	2
6	65.00	46.00	95.00	40.00	2
7	.00	40.00	95.00	40.00	3
8	95.00	40.00	175.00	22.00	3
9	.00	22.00	175.00	22.00	4
10	175.00	22.00	190.00	20.00	4
11	190.00	20.00	500.00	20.00	4
12	.00	8.00	500.00	8.00	5

1

ISOTROPIC SOIL PARAMETERS

6 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	102.0	107.0	230.0	.0	.00	.0	1
2	100.0	105.0	230.0	.0	.00	.0	1
3	112.0	117.0	420.0	.0	.00	.0	1

CHEFLTO

4	98.0	103.0	230.0	.0	.00	.0	1
5	113.0	118.0	420.0	.0	.00	.0	1
6	90.0	95.0	.0	38.0	.00	.0	1

1

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	46.00
2	500.00	46.00

1

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

400 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 20 Points Equally Spaced Along The Ground Surface Between X = .00 ft.
and X = 100.00 ft.

Each Surface Terminates Between X = 180.00 ft.
and X = 300.00 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.

Restrictions Have Been Imposed Upon The Angle Of Initiation. The Angle Has Been Restricted Between The Angles Of -45.0 And .0 deg.

1

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 35 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.58	50.00
2	38.70	42.98
3	46.24	36.41
4	54.18	30.33
5	62.48	24.76
6	71.12	19.72
7	80.05	15.22
8	89.25	11.30
9	98.67	7.95
10	108.29	5.21
11	118.06	3.07
12	127.94	1.54
13	137.90	.64
14	147.90	.36
15	157.89	.70
16	167.84	1.67
17	177.72	3.26
18	187.47	5.46
19	197.07	8.27
20	206.47	11.67
21	215.64	15.66
22	224.55	20.21
23	233.15	25.30
24	241.42	30.93
25	249.32	37.06
26	256.82	43.67
27	263.89	50.74
28	270.51	58.24
29	276.65	66.14
30	282.28	74.40
31	287.38	83.00
32	291.93	91.90
33	295.92	101.07
34	299.33	110.47
35	299.92	112.48

*** 1.212 ***

Individual data on the 46 slices

Slice No.	Width Ft(m)	Weight Lbs(kg)	Water Force Top Lbs(kg)	Water Force Bot Lbs(kg)	Tie Force Norm Lbs(kg)	Tie Force Tan Lbs(kg)	Earthquake Force Hor Lbs(kg)	Earthquake Force Ver Lbs(kg)	Surcharge Load Lbs(kg)
1	4.1	827.0	.0	.0	.0	.0	.0	.0	.0
2	3.1	1736.7	.0	406.1	.0	.0	.0	.0	.0
3	3.4	3015.4	.0	1276.4	.0	.0	.0	.0	.0
4	4.1	5145.8	.0	2658.6	.0	.0	.0	.0	.0
5	3.8	6113.5	.0	3258.5	.0	.0	.0	.0	.0
6	4.2	8453.0	.0	4622.0	.0	.0	.0	.0	.0
7	8.3	22054.8	.0	11516.2	.0	.0	.0	.0	.0
8	2.5	7984.1	.0	3996.5	.0	.0	.0	.0	.0

9	2.2	7462.0	.0	3725.0	.0	.0	.0	.0	.0
10	3.9	14224.8	.0	7106.5	.0	.0	.0	.0	.0
11	8.9	36782.3	.0	17803.0	.0	.0	.0	.0	.0
12	9.2	43563.4	.0	20429.5	.0	.0	.0	.0	.0
13	5.7	29881.6	.0	13599.1	.0	.0	.0	.0	.0
14	3.5	19357.7	.0	8777.3	.0	.0	.0	.0	.0
15	.1	708.1	.0	320.8	.0	.0	.0	.0	.0
16	9.6	55833.7	.0	24597.3	.0	.0	.0	.0	.0
17	9.8	61200.2	.0	26122.3	.0	.0	.0	.0	.0
18	9.9	65761.1	.0	27266.4	.0	.0	.0	.0	.0
19	10.0	69429.5	.0	28024.8	.0	.0	.0	.0	.0
20	10.0	72138.1	.0	28394.9	.0	.0	.0	.0	.0
21	10.0	73839.2	.0	28375.0	.0	.0	.0	.0	.0
22	10.0	74506.5	.0	27965.2	.0	.0	.0	.0	.0
23	7.2	53753.6	.0	19792.0	.0	.0	.0	.0	.0
24	2.7	20396.0	.0	7375.2	.0	.0	.0	.0	.0
25	9.8	73029.7	.0	25984.1	.0	.0	.0	.0	.0
26	2.5	18831.8	.0	6606.3	.0	.0	.0	.0	.0
27	6.1	45451.9	.0	15552.5	.0	.0	.0	.0	.0
28	.9	6753.1	.0	2261.7	.0	.0	.0	.0	.0
29	9.4	68435.2	.0	22482.5	.0	.0	.0	.0	.0
30	9.2	65180.5	.0	20177.8	.0	.0	.0	.0	.0
31	8.5	58467.2	.0	16784.9	.0	.0	.0	.0	.0
32	.4	2713.5	.0	730.3	.0	.0	.0	.0	.0
33	8.6	56716.5	.0	14505.3	.0	.0	.0	.0	.0
34	8.3	51863.1	.0	11159.8	.0	.0	.0	.0	.0
35	7.9	46581.1	.0	7491.8	.0	.0	.0	.0	.0
36	7.5	40988.9	.0	3515.6	.0	.0	.0	.0	.0
37	2.3	11994.3	.0	239.1	.0	.0	.0	.0	.0
38	4.7	23274.7	.0	.0	.0	.0	.0	.0	.0
39	6.6	29665.6	.0	.0	.0	.0	.0	.0	.0
40	6.1	24136.5	.0	.0	.0	.0	.0	.0	.0
41	5.6	18798.4	.0	.0	.0	.0	.0	.0	.0
42	5.1	13780.4	.0	.0	.0	.0	.0	.0	.0
43	4.6	9208.8	.0	.0	.0	.0	.0	.0	.0
44	4.0	5204.7	.0	.0	.0	.0	.0	.0	.0
45	3.4	1881.9	.0	.0	.0	.0	.0	.0	.0
46	.6	49.3	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 34 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.53	50.00
2	17.63	42.96
3	25.15	36.38
4	33.08	30.28
5	41.37	24.69
6	50.00	19.63
7	58.92	15.12
8	68.12	11.18
9	77.54	7.83
10	87.15	5.07
11	96.91	2.92
12	106.80	1.38
13	116.75	.47
14	126.75	.18
15	136.74	.52
16	146.70	1.49
17	156.57	3.08
18	166.32	5.29

		CHEFLTO
19	175.92	8.10
20	185.32	11.50
21	194.49	15.49
22	203.39	20.05
23	211.99	25.16
24	220.25	30.79
25	228.14	36.94
26	235.63	43.56
27	242.70	50.64
28	249.30	58.15
29	255.42	66.06
30	261.03	74.34
31	266.11	82.95
32	270.65	91.86
33	274.61	101.04
34	276.63	106.66

*** 1.256 ***

1

Failure Surface Specified By 33 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.11	50.00
2	49.19	42.94
3	56.73	36.38
4	64.71	30.34
5	73.07	24.86
6	81.78	19.95
7	90.81	15.65
8	100.11	11.97
9	109.63	8.92
10	119.34	6.53
11	129.19	4.80
12	139.13	3.74
13	149.13	3.36
14	159.12	3.65
15	169.07	4.62
16	178.94	6.26
17	188.67	8.57
18	198.22	11.53
19	207.55	15.13
20	216.62	19.35
21	225.37	24.18
22	233.78	29.59
23	241.81	35.56
24	249.41	42.05
25	256.56	49.05
26	263.21	56.51
27	269.35	64.41
28	274.93	72.71
29	279.94	81.36
30	284.36	90.33
31	288.15	99.58
32	291.31	109.07
33	291.66	110.42

*** 1.275 ***

Failure Surface Specified By 33 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.37	50.00
2	54.53	43.02
3	62.13	36.53
4	70.16	30.56
5	78.56	25.13
6	87.30	20.28
7	96.35	16.02
8	105.66	12.38
9	115.20	9.36
10	124.91	6.98
11	134.76	5.26
12	144.70	4.19
13	154.69	3.79
14	164.69	4.06
15	174.65	4.99
16	184.52	6.58
17	194.26	8.82
18	203.84	11.71
19	213.20	15.23
20	222.30	19.37
21	231.11	24.10
22	239.59	29.41
23	247.69	35.27
24	255.38	41.66
25	262.64	48.54
26	269.41	55.89
27	275.69	63.68
28	281.43	71.87
29	286.61	80.42
30	291.21	89.30
31	295.21	98.47
32	298.59	107.88
33	299.90	112.48

*** 1.284 ***

1

Failure Surface Specified By 34 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.26	50.00
2	12.43	43.02
3	20.01	36.51

		CHEFLTO
4	27.99	30.48
5	36.33	24.95
6	44.99	19.96
7	53.95	15.52
8	63.17	11.65
9	72.61	8.36
10	82.24	5.66
11	92.02	3.57
12	101.91	2.09
13	111.88	1.24
14	121.87	1.00
15	131.87	1.39
16	141.82	2.40
17	151.68	4.03
18	161.43	6.27
19	171.01	9.12
20	180.40	12.55
21	189.56	16.57
22	198.45	21.15
23	207.04	26.27
24	215.29	31.92
25	223.18	38.07
26	230.66	44.71
27	237.71	51.79
28	244.32	59.30
29	250.43	67.21
30	256.05	75.49
31	261.14	84.10
32	265.68	93.01
33	269.65	102.18
34	270.74	105.18

*** 1.295 ***

Failure Surface Specified By 35 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	.00	50.00
2	7.31	43.18
3	15.01	36.80
4	23.07	30.88
5	31.47	25.45
6	40.17	20.52
7	49.15	16.12
8	58.37	12.25
9	67.80	8.93
10	77.42	6.17
11	87.17	3.98
12	97.04	2.38
13	106.99	1.35
14	116.98	.91
15	126.98	1.07
16	136.95	1.81
17	146.86	3.13
18	156.68	5.04
19	166.37	7.52

		CHEFLTO
20	175.89	10.57
21	185.22	14.18
22	194.32	18.33
23	203.16	23.00
24	211.71	28.19
25	219.93	33.88
26	227.81	40.04
27	235.31	46.65
28	242.41	53.69
29	249.09	61.14
30	255.31	68.97
31	261.06	77.15
32	266.32	85.65
33	271.07	94.45
34	275.29	103.52
35	276.52	106.63

*** 1.307 ***

1

Failure Surface Specified By 32 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.37	50.00
2	54.48	42.97
3	62.06	36.45
4	70.08	30.47
5	78.50	25.07
6	87.27	20.27
7	96.36	16.10
8	105.71	12.57
9	115.29	9.70
10	125.05	7.51
11	134.93	6.00
12	144.90	5.18
13	154.90	5.07
14	164.88	5.65
15	174.80	6.93
16	184.61	8.89
17	194.25	11.54
18	203.68	14.85
19	212.87	18.82
20	221.75	23.41
21	230.29	28.61
22	238.44	34.40
23	246.18	40.74
24	253.45	47.61
25	260.22	54.96
26	266.46	62.78
27	272.15	71.00
28	277.24	79.61
29	281.72	88.55
30	285.57	97.78
31	288.76	107.26
32	289.44	109.86

*** 1.316 ***

Failure Surface Specified By 34 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	36.84	50.00
2	44.24	43.27
3	52.04	37.01
4	60.22	31.26
5	68.74	26.02
6	77.56	21.32
7	86.67	17.19
8	96.01	13.62
9	105.56	10.65
10	115.28	8.28
11	125.12	6.52
12	135.05	5.37
13	145.04	4.85
14	155.04	4.95
15	165.01	5.67
16	174.92	7.01
17	184.73	8.96
18	194.39	11.53
19	203.88	14.69
20	213.15	18.43
21	222.17	22.75
22	230.91	27.62
23	239.32	33.02
24	247.38	38.94
25	255.06	45.35
26	262.32	52.23
27	269.14	59.54
28	275.49	67.26
29	281.35	75.37
30	286.69	83.82
31	291.50	92.59
32	295.74	101.65
33	299.42	110.94
34	299.92	112.48

*** 1.319 ***

1

Failure Surface Specified By 32 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.32	50.00
2	33.41	42.96
3	40.98	36.42

4	48.98	30.42
5	57.38	24.98
6	66.12	20.14
7	75.19	15.91
8	84.52	12.32
9	94.08	9.37
10	103.81	7.10
11	113.68	5.50
12	123.64	4.58
13	133.64	4.35
14	143.63	4.82
15	153.56	5.97
16	163.39	7.80
17	173.07	10.30
18	182.56	13.47
19	191.80	17.28
20	200.76	21.72
21	209.40	26.77
22	217.66	32.40
23	225.52	38.58
24	232.93	45.30
25	239.86	52.51
26	246.28	60.18
27	252.15	68.27
28	257.45	76.75
29	262.16	85.57
30	266.25	94.70
31	269.69	104.09
32	269.96	104.99

*** 1.323 ***

Failure Surface Specified By 34 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.32	50.00
2	33.77	43.33
3	41.61	37.13
4	49.82	31.42
5	58.36	26.21
6	67.20	21.54
7	76.31	17.42
8	85.65	13.85
9	95.20	10.87
10	104.91	8.47
11	114.74	6.66
12	124.67	5.46
13	134.65	4.87
14	144.65	4.88
15	154.63	5.50
16	164.56	6.73
17	174.39	8.57
18	184.09	11.00
19	193.62	14.01
20	202.95	17.60
21	212.05	21.75

		CHEFLTO
22	220.88	26.45
23	229.40	31.68
24	237.60	37.41
25	245.42	43.64
26	252.85	50.33
27	259.86	57.46
28	266.43	65.01
29	272.52	72.94
30	278.12	81.22
31	283.20	89.83
32	287.75	98.74
33	291.74	107.91
34	292.76	110.69

*** 1.335 ***

1

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                Y            A     X     I     S            F     T

                .00     62.50    125.00    187.50    250.00    312.50

X          .00 +*--*-***-+---------+---------+---------+---------+
               -     652
               -    622.
               -   52.91
               -  52.113
               - 52.133*
           62.50 +.29134*..
               -22134....
               -2134.....
               2113..*....
               213........
               137........
A         125.00 13.........
               13.........
               13..........
               13..........
               12...........
               -15.*........
X         187.50 +12*...........
               -125...........
               - 1226..........
               -  1725.........
               -  11325........
               -    13225.......
I         250.00 +     137265.....
               -      113.2259...
               -        137326225
               -          1133.72
               -            141133
               -                41
S         312.50 +
               -
               -
               -
               -                    *
               -
           375.00 +
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                    -
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                    -
                    -
                    -
F       437.50      +
                    -
                    -
                    -
                    -
                    -
T       500.00      +* *   W              *
1
                    ****************************************
                    ******            - Illegal Command  ******
                    ****************************************


                    Legal Commands - PROFIL
                                     LOADS
                                     TIES
                                     WATER
                                     SURFAC
                                     EXECUT
                                     EQUAKE
                                     SOIL
                                     RANDOM
                                     CIRCLE
                                     CIRCL2
                                     BLOCK
                                     BLOCK2
                                     LIMITS
                                     ANISO
                                     SURBIS
                                     SPENCR
0                    TIES
                                     WATER
                                     SURFAC
                                     EXECUT
                                     EQUAKE
```

Settlement Estimate

SETTLEMENT ESTIMATE **03/11/06**
BY: JLA
RE: CHEF MENTEUR
C & D LANDFILL
JLAI NO. 05213

A two cell Construction and Demolition Debris Landfill is being planned for a site off Chef Menteur Highway in the east end of Orleans Parish. The attached map, Figure 1, shows the site location. This parcel is located behind the Chef Menteur Pick-up Station. Figure 2 shows the available property.

The contouring shown thereon describes four large and deep excavations (the site was developed as a borrow pit). In other words, the geotechnically desirable materials associated with the natural levee were mined for use elsewhere. The nominal base of excavation is irregular, generally between elevations –10 to –25. Original ground surface elevation is mapped in this area at 0 to 2. The higher elevations are along Chef Menteur Highway paralleling Bayou Sauvage, an abandoned distributary of the Mississippi River. The higher ground along the Bayou represents the natural levee of this distributary. Thus the soils along the Bayou are overbank deposits, sands, silts, and clays. Further from the Bayou these materials grade into more fine-grained soils such as silts and clays that entrain some organic materials, possibly peat.

The proposed excavation for cells is shown on Figure 3. Nominal base grade on this plan varies from elevation-25 to –33. This indicates a small increment of cut over most of the borrow pit and removal of the higher ridges (probably former separation berms) within the borrow pit. Figures 4 and 5 shows the final grades to be attained, the maximum top grade will be about elevation 79 in the eastern cell (Cell 1).

Information on the geotechnical characteristics of the soils is presented on a series of boring logs. These logs are attached for reference. The logs dated 1993 preceded excavation of the borrow pit. Thus the upper portion of these logs characterizes materials now excavated. The boring logs dated 2004 were performed in the vicinity of the Pick-up Station. Thus, these logs also characterize materials from original grade. The logs dated 2006 were performed in the base of the borrow pit excavation.

For analysis of settlement under the load of landfilled materials, the available geotechnical data and the proposed construction are most readily comprehended by adapting the two profiles prepared by Gore Engineering (Figures 6 and 7). The line at elevation 30 is scribed on each profile. These marks indicate that most of the fine-grained (clayey) soils will be removed by deepening of the borrow pit to form the cells. Thus the soil profile to be used for settlement analysis simplifies to the following:

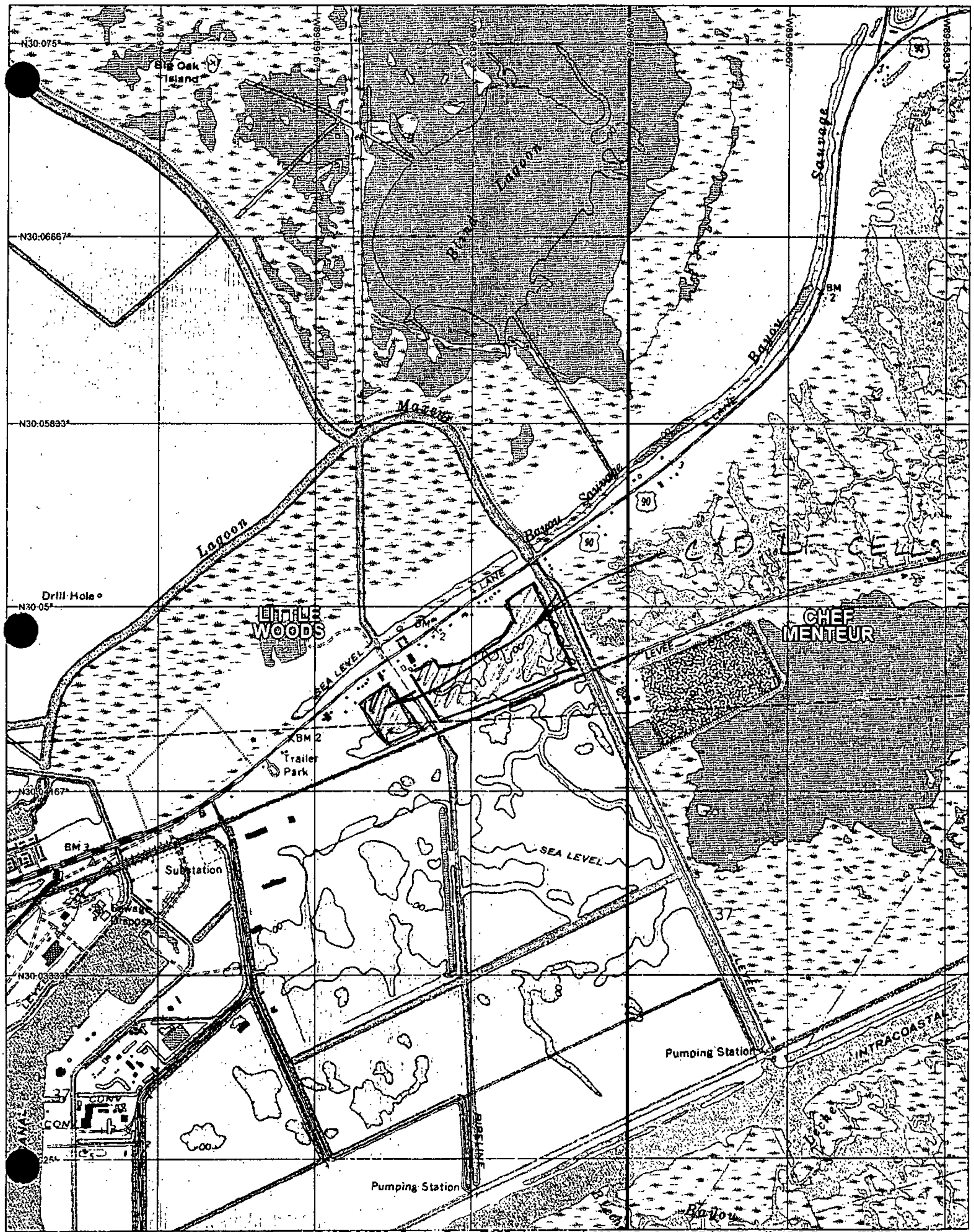
1. 10' of very soft to medium stiff gray CLAY with sand and silt lenses and pockets (abbreviate to CH stratum)
2. 25' of loose to medium dense gray silty fine SAND (abbreviate to SP-SM)

3. 35' or more of medium dense to dense gray silty fine SAND, grading with depth to coarse SAND (abbreviate to SP)

Atop this profile is the load of landfilled material. For the purposes of this analysis, the dry unit weight of the waste is taken to be 1500 pounds per cubic yard (pcy) or 56 pounds per cubic foot (pcf). Above the water level this material will be assigned moisture content of 5%. Below the water level the moisture content assigned is 35%. That material placed as high as elevation 79 equates to a height of waste of 109'. This, along with the soil profile below the base of cut is the design profile for estimating settlement due to the greatest load of waste placed. Figure 8 is the profile.

Geotechnical parameters attributable to each layer are included with the profile on Figure 8. These parameters are used in the settlement analysis shown on that sheet (the last column). The straightforward calculation yields an estimated settlement of 22". This value should be given a range to reflect the variability of this analysis. Using my past experience as a guide, I recommend a settlement range of 2' to 2.5'.

The foregoing theoretical analysis indicates gross settlement in the range of 2' to 2.5' under those portions of the landfill most heavily loaded. For other locations near the perimeter and under slopes the range is much less, probably 6" to 12".



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 1000 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

FIGURE 1

SHEET 2

CHEF MENTEUR HIGHWAY

LOT 27 LOT 28 LOT 29 LOT 30 LOT 31 LOT 32 LOT 33 LOT 34 1C-8A LOT 39 LOT 40 LOT 41 LOT 42 LOT 43 LOT 44 LOT 45 LOT 46 LOT 47 LOT 48 LOT 49 LOT 51 LOT 52 LOT 53 LOT 54 LOT 55 LOT 56 LOT 57 LOT 58 LOT 59 LOT 60 LOT 61 LOT 62

BUILDING

SHED

GRAVEL DRIVE

EXISTING TRANSFER STATION

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)

1 inch = 140 ft.

ORIGINAL SCALE FOR READABILITY

DATE	DESCRIPTION REVISIONS	BY

EXISTING SITE PLAN

CHEF MENTEUR

C & D LANDFILL

ORLEANS PARISH

JANUARY, 2008

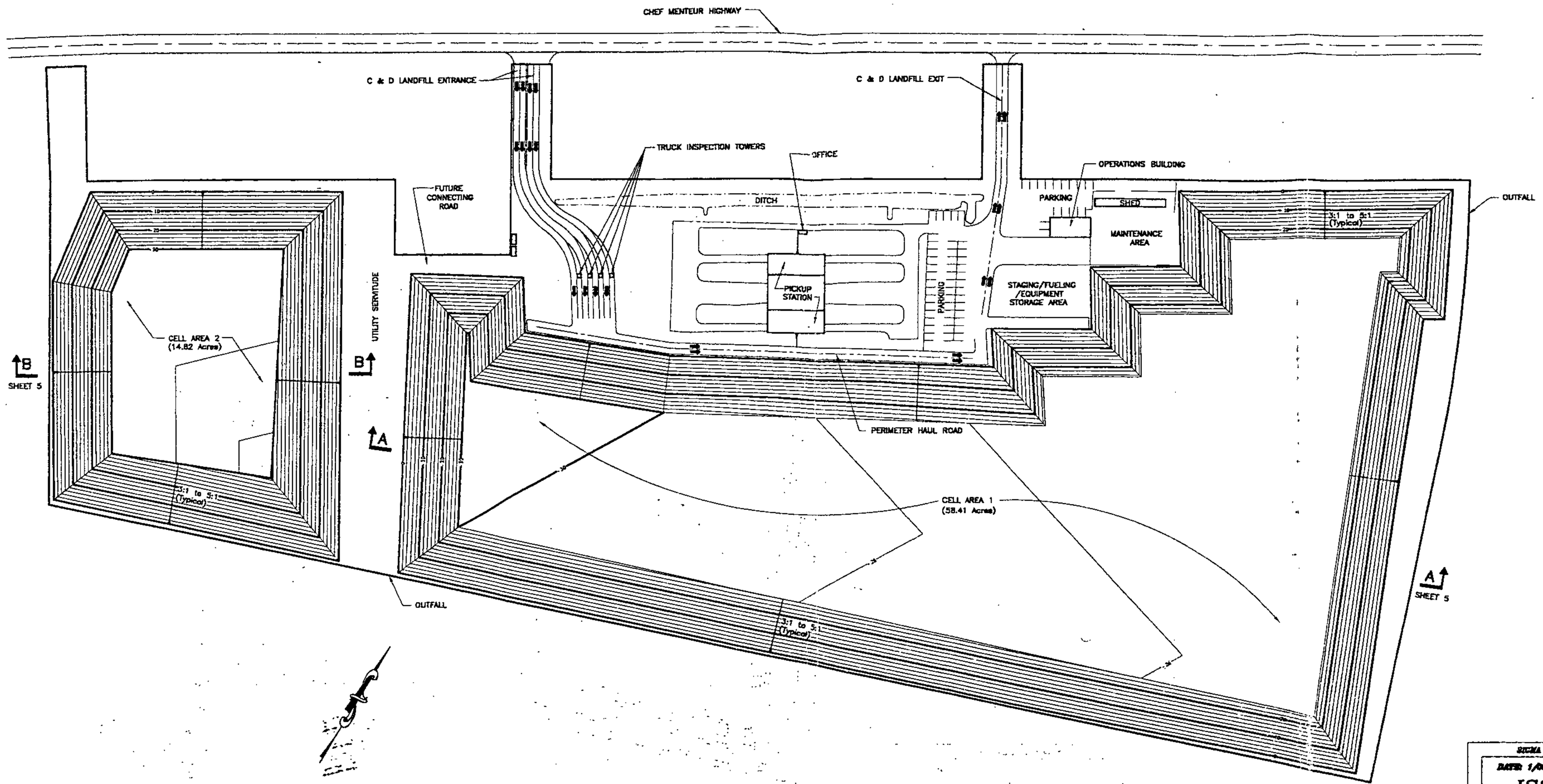
WASTE MANAGEMENT

SIGMA ENGINEERING & CONSTRUCTION

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

FIGURE 2

SHEET 3



NOTE: THE ELEVATIONS SHOWN WITHIN THE CELL AREAS ARE AT MAXIMUM DEPTHS. THE SIDE SLOPES AND BASE ELEVATIONS MAY DIFFER FROM THESE DEPENDING ON SOIL CONDITIONS.

SIGMA ENGINEERS & CONSTRUCTORS

DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)

1 inch = 140 ft.

UNIFORM SCALE FOR READABILITY

DATE	DESCRIPTION REVISION	BY

SITE EXCAVATION GRADING PLAN

CHEF MENTEUR

C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

FIGURE 3

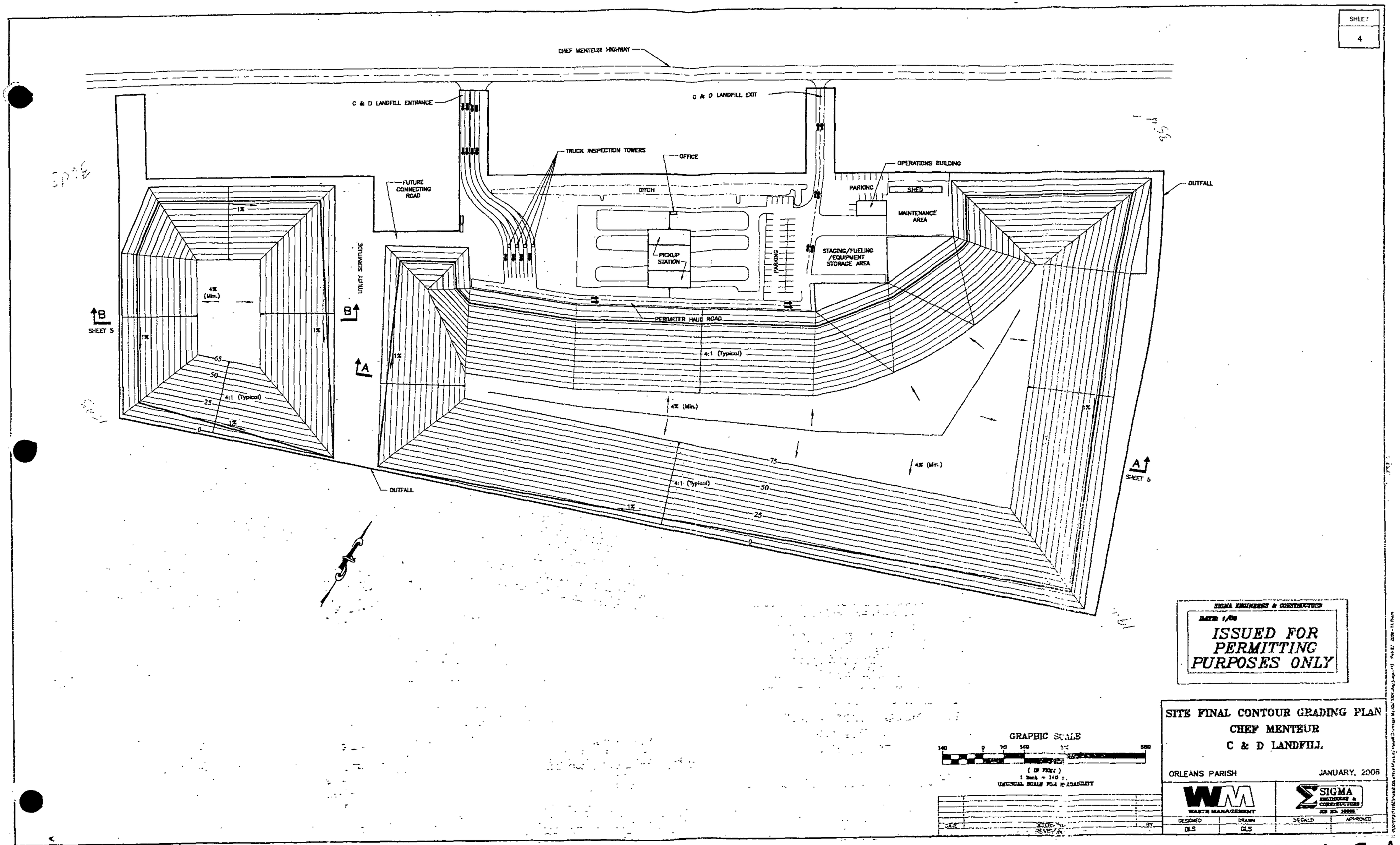
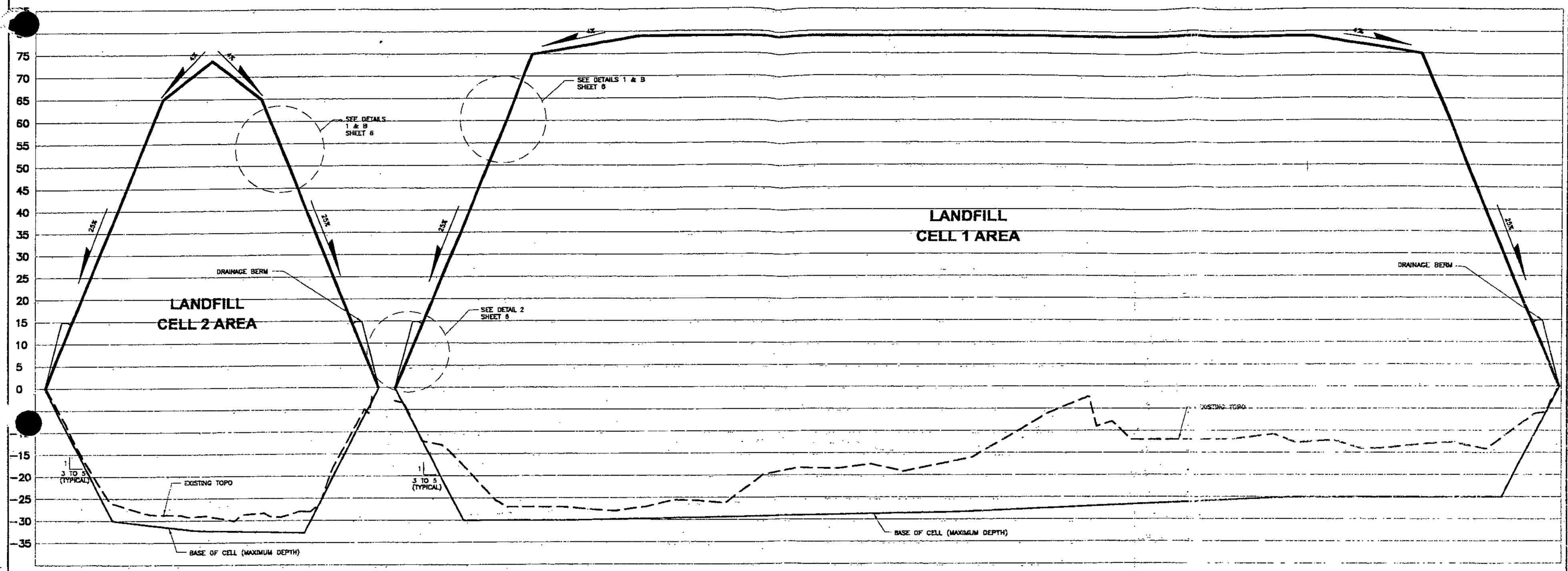

SHEET
4
CHEF MENTEUR HIGHWAY
C & D LANDFILL ENTRANCE
C & D LANDFILL EXIT
TRUCK INSPECTION TOWERS
OFFICE
OPERATIONS BUILDING
FUTURE CONNECTING ROAD
DITCH
PARKING
SHED
MAINTENANCE AREA
OUTFALL
PICKUP STATION
PARKING
STAGING/FUELING /EQUIPMENT STORAGE AREA
UTILITY SERVITUDE
4% (Min.)
B
SHEET 5
B
1%
1%
1%
65
50
25
0
4:1 (Typical)
A
1%
PERIMETER HAUL ROAD
4:1 (Typical)
4% (Min.)
1%
75
50
25
0
4:1 (Typical)
4% (Min.)
1%
A
SHEET 5
OUTFALL
SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06
ISSUED FOR PERMITTING PURPOSES ONLY
GRAPHIC SCALE
140
0
70
140
560
(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY
SITE FINAL CONTOUR GRADING PLAN
CHEF MENTEUR
C & D LANDFILL
ORLEANS PARISH
JANUARY, 2006
WASTE MANAGEMENT
SIGMA ENGINEERS & CONSTRUCTORS
DESIGNED
DRAWN
CHECKED
APPROVED
DLS
DLS
DATE
DESCRIPTION
BY
REVISION

FIGURE 4

SHEET 5



CROSS SECTION B-B'

HORIZ. 0' 50' 100' 100'
VERT. 0' 10' 20'
SCALE

CROSS SECTION A-A'

HORIZ. 0' 50' 100' 100'
VERT. 0' 10' 20'
SCALE

NOTE: THE ELEVATIONS SHOWN WITHIN THE CELL AREAS ARE AT MAXIMUM DEPTHS. THE SIDE SLOPES AND BASE ELEVATIONS MAY DIFFER FROM THESE DEPENDING ON SOIL CONDITIONS.

SIGMA ENGINEERS & CONTRACTORS
DATE 1/09
ISSUED FOR PERMITTING PURPOSES ONLY

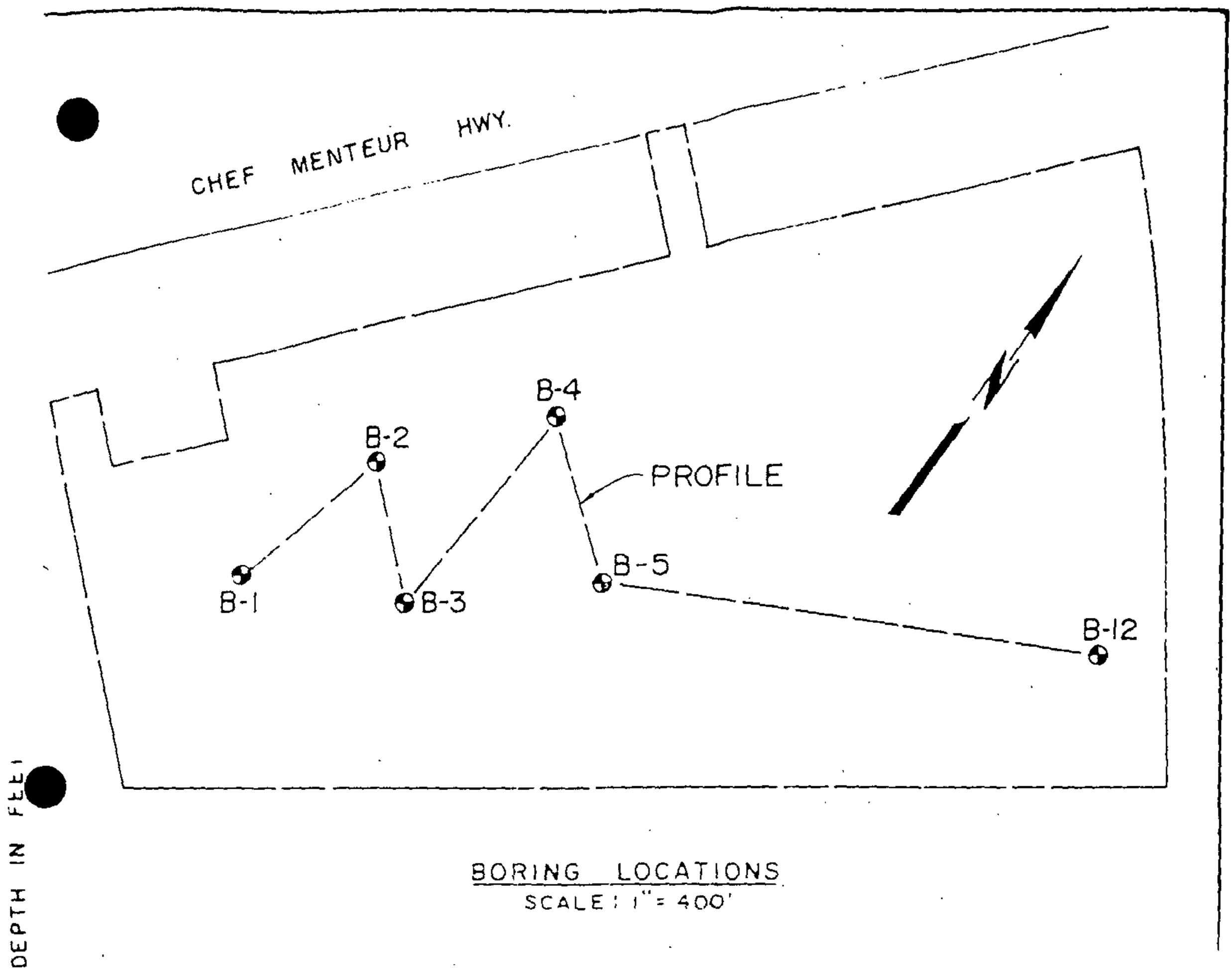
LANDFILL CROSS SECTIONS
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONTRACTORS

DATE	DESCRIPTION REVISION	BY	DESIGNED	DRAWN	CHECKED	APPROVED
			DLS	DLS		

FIGURE 5



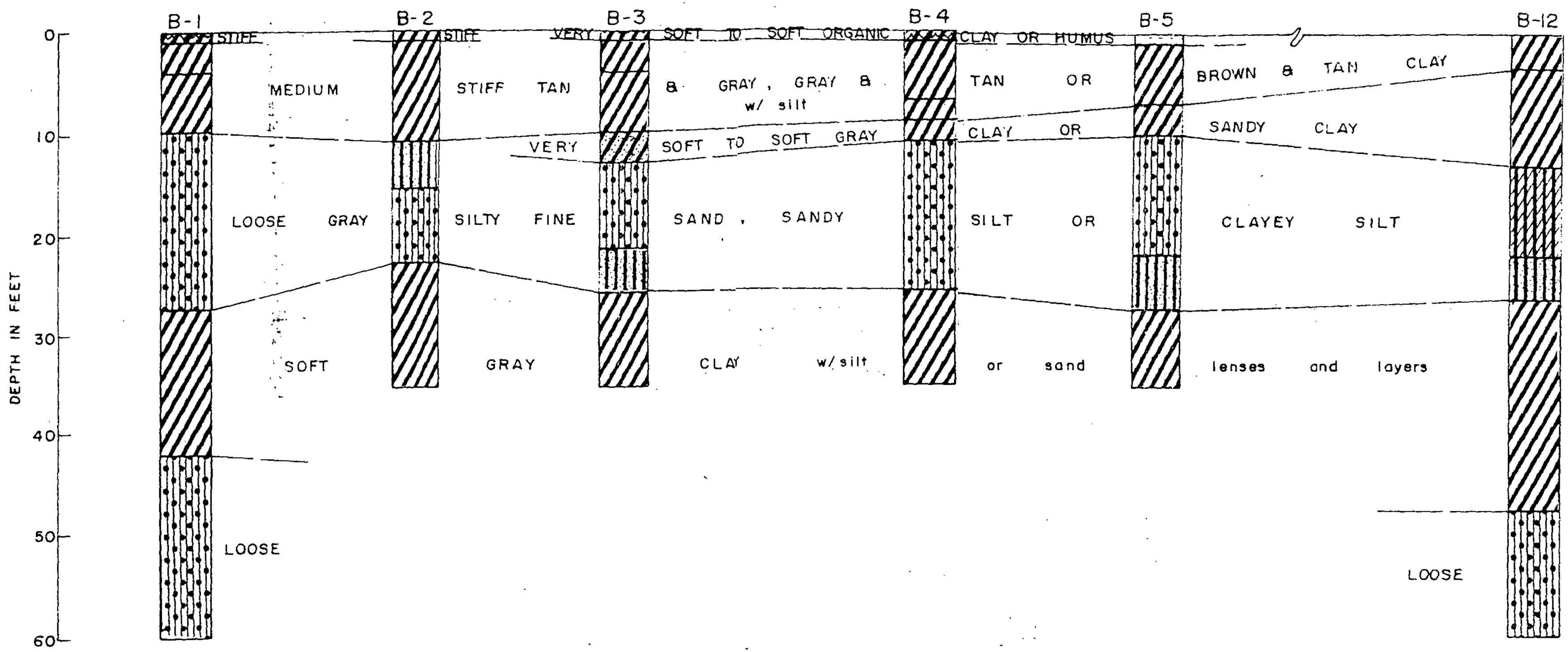
BORING LOCATIONS
SCALE: 1" = 400'

SOIL BORINGS & LABORATORY TESTS
PROPOSED BORROW PIT
16600 CHEF MENTEUR HIGHWAY
NEW ORLEANS, LOUISIANA

BORING LOCATIONS AND SUBSOIL PROFILE

1993 BORINGS

RIVER ROAD CONSTRUCTION CO.
MANDEVILLE, LOUISIANA



SUBSOIL PROFILE
SCALE: 1" = 200'

T.J.McG.
J-5366

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-1

LOG OF BORING AND TEST RESULTS

Date of Boring: 10

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO. - MANDEVILLE, LOUISIANA

Recorded By: D. A.

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	UNCONFINED COMP. (qu) (lbs/sq.ft)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LI L.L.	P.L.
1	.0	.5	.0 / 1.0	STIFF BROWN ORGANIC CLAY (DRY) *(OH)*					57.8				
2	2.5	3.0	4.0	MEDIUM-STIFF TAN & GRAY CLAY W/SILT *(CH)*				1050	43.0	71.7	102.5	77	24
3	5.5	6.0		MEDIUM STIFF GRAY & TAN CLAY W/SILT *(CH)*			5	1290	51.7	67.4	102.3		
4	8.5	9.0	10.0				10	1010	61.9	61.0	98.8	100	33
5	11.5	12.0						930*	22.7	96.0	117.8		(38)
6	14.5	15.0					15	670*	36.4	78.8	107.5		
7	19.5	20.0		LOOSE GRAY SILTY FINE SAND W/CLAY LAYERS *(SM)*			20	1050*	28.8	88.2	113.6		(50)
8	24.5	25.0	27.5				25	1010*	34.4	82.2	110.5		
9	29.5	30.0					30	700	66.5	57.4	95.5	73	27
10	34.5	35.0		SOFT GRAY CLAY W/SAND LENSES *(CH)*			35	550	48.7	68.5	101.8		
11	39.5	40.0	42.0				40	935	54.9	63.1	97.7		
12	44.5	45.0					45	750	24.1	91.0	112.9		
13	49.5	50.0		LOOSE GRAY SILTY FINE SAND *(SM)*			50	620*	27.6	89.8	114.6		
14	54.5	55.0					55						
15	59.5	60.0	60.0				60	740*	27.8	89.9	114.9		

Values in parentheses indicate Percent Passing No. 200 S

CLAY SILT SAND ORGANIC

*140 lb. hammer dropped 30 in. on 2 in. splitspoon sampler after first being seated 6 in.

REMARKS: *equivalent Qu from 1-point triaxial test
WATER TABLE AT 5.6' (SEE TEXT)
() Indicate Unified Soils Classification

Fi

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

LOG OF BORING AND TEST RESULTS

Boring No. B-2

Date of Boring: 9 .

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO. - MANDEVILLE, LOUISIANA

Recorded By: D. A.

Sample No.	Sample Depth in Feet From	Sample Depth in Feet To	Stratum Depth in feet	Visual Classification	*Blows per Foot	Symbol Log	Scale (ft)	Unconfined Comp. (qu) (lbs/sq.ft)	Water Content (percent)	Unit Weight (lbs./cu.ft.) Dry	Unit Weight (lbs./cu.ft.) Wet	Atterberg Limits L.L.	Atterberg Limits P.L.
			.0										
1	.0	.5	1.0	STIFF BROWN CLAY W/SILT *(CH)*					35.1				
2	2.5	3.0		MEDIUM STIFF GRAY & TAN CLAY W/SILT *(CH)*				1065	40.8	72.8	102.5		
							5						
3	5.5	6.0							41.3			88	24
4	8.5	9.0					10	1145	49.2	69.7	104.0		
			11.0										
5	11.5	12.0		LOOSE GRAY SANDY SILT W/CLAY LAYERS *(ML)*					26.2				(86)
6	14.5	15.0					15	570*	27.4	89.8	114.4		
			15.5										
7	19.5	20.0		LOOSE GRAY SILTY FINE SAND *(SM)*			20		26.2				(24)
			23.0										
8	24.5	25.0		SOFT GRAY CLAY W/SILT LENSES & LAYERS *(CH)*			25	905	53.2	67.1	102.8		
9	29.5	30.0					30		44.7			46	24
10	34.5	35.0					35	435	76.1	51.1	89.9		
			35.0										

Values in parentheses () indicate Percent Passing No. 200 Sieve.

CLAY SILT SAND ORGANIC

*140 lb. hammer dropped 30 in. on 2 in. splitspoon sampler after first being seated 6 in.

REMARKS: *equivalent Qu from 1-point triaxial test
WATER TABLE AT 4.3' (SEE TEXT)
() Indicate Unified Soils Classification

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

J*53

Boring No. B-3

LOG OF BORING AND TEST RESULTS

Date of Boring: 9 Jun 19

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO. - MANDEVILLE, LOUISIANA

Recorded By: D. A. Hil

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	UNCONFINED COMP. (qu) (lbs/sq.ft)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I.
1	.0	.5	.0	SOFT BROWN ORGANIC CLAY *(OH)*					67.8					
			1.0											
2	2.5	3.0		MEDIUM STIFF TAN & GRAY CLAY W/SILT (FISSURED) *(CH)*				705	50.3	67.5	101.4	89	29	60
			4.0											
3	5.5	6.0		MEDIUM STIFF GRAY & TAN CLAY W/SILT (FISSURED) *(CH)*			5		46.5					
4	8.5	9.0					10	440	59.0	62.2	98.9	103	18	85
			10.0											
5	11.5	12.0		VERY SOFT GRAY SANDY CLAY W/SAND LENSES & LAYERS *(CL)*				265	39.0	74.9	104.1	39	26	13
			13.0											
6	14.5	15.0					15		26.6				(48)	
				LOOSE GRAY SILTY FINE SAND W/CLAY LAYERS *(SM)*										
7	19.5	20.0					20		26.4					
			21.5											
				LOOSE GRAY SANDY SILT *(ML)*										
8	24.5	25.0					25		31.4				(66)	
			26.0											
9	29.5	30.0		SOFT GRAY CLAY W/SAND *(CH)*			30	520	59.1	61.7	98.1	70	26	4
10	34.5	35.0					35		48.5					
			35.0											

Values in parentheses indicate Percent Passing No. 200 Sieve.

CLAY SILT SAND ORGANIC

*140 lb. hammer dropped 30 in. on 2 in. splitspoon sampler

REMARKS: WATER TABLE AT 2.1' (SEE TEXT)
() Indicate Unified Soils Classification

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

J*5366

Boring No. B-4

LOG OF BORING AND TEST RESULTS

Date of Boring: 9 Jun 1993

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO. - MANDEVILLE, LOUISIANA

Recorded By: D. A. Hill

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	UNCONFINED COMP. (qu) (lbs/sq.ft)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I.
1	.0	.5	.0	SOFT BROWN ORGANIC CLAY W/ROOTS *(OH)*					19.3					
			1.0											
2	1.5	2.0		MEDIUM STIFF TAN & GRAY CLAY W/SILT *(CH)*					35.0					
3	3.5	4.0						1765	37.8	79.6	109.7	77	19	58
							5							
4	5.5	6.0							37.7					
			7.0											
5	7.5	8.0		MEDIUM STIFF GRAY & TAN CLAY *(CH)*				1030	39.8	76.9	107.5	65	16	49
			9.0											
6	9.5	10.0		MEDIUM STIFF GRAY CLAY W/SILT LENSES & LAYERS *(CH)*			10	1085	55.1	65.9	102.2	96	29	67
			11.0											
7	11.5	12.0		LOOSE GRAY SILTY FINE SAND *(SM)*					23.4				(11)	
8	13.5	14.0							23.3					
							15							
9	15.5	16.0							24.2				(31)	
10	17.5	18.0							25.3					
11	19.5	20.0					20		26.2				(47)	
12	24.5	25.0					25		30.7					
			26.0											
13	29.5	30.0		SOFT GRAY CLAY W/SAND *(CH)*			30		67.8			91	27	64
14	34.5	35.0					35		56.2					
			35.0											

Values in parentheses indicate Percent Passing No. 200 Sieve.

CLAY SILT SAND ORGANIC

*140 lb. hammer dropped 30 in.

REMARKS: WATER TABLE AT 9.2' (SEE TEXT)

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

Boring No. B-5

LOG OF BORING AND TEST RESULTS

Date of Boring: 9 Jun 1

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO - MANDEVILLE, LOUISIANA

Recorded By: D. A. Hi

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	UNCONFINED COMP. (qu) (lbs/sq.ft)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I
1	.0	.5	.0	VERY SOFT BROWN HUMUS *(PT)*					62.5					
			1.0											
2	2.5	3.0		MEDIUM STIFF TAN & GRAY CLAY W/SILT (FISSURED) *(CH)*				365	64.9	57.3	94.5			
							5							
3	5.5	6.0							53.6			82	26	5
			7.0											
4	8.5	9.0		SOFT GRAY CLAY W/ROOTS *(CH)*				815	59.3	61.9	98.6	97	33	6
							10							
			10.0											
5	11.5	12.0							23.4					
6	14.5	15.0		LOOSE GRAY SILTY FINE SAND W/CLAY LAYERS *(SM)*			15		29.2				(44)	
7	19.5	20.0					20		27.3					
			22.0											
8	24.5	25.0		LOOSE GRAY SANDY SILT *(ML)*			25		30.5				(78)	
			27.5											
9	29.5	30.0		SOFT GRAY CLAY W/SAND LENSES *(CH)*			30	505	70.2	55.5	94.4	81	29	5
10	34.5	35.0					35		52.3					
			35.0											

Values in parentheses indicate Percent Passing No. 200 Sieve.

CLAY SILT SAND ORGANIC

Predominant type bold. Modifying type light.

*140 lb. hammer dropped 30 in. on 2 in. splitspoon sampler after first being seated 6 in.

REMARKS: WATER TABLE AT 1.6' (SEE TEXT)
() Indicate Unified Soils Classification

Fig. 6

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

J*53

Boring No. B-12

LOG OF BORING AND TEST RESULTS

Date of Boring: 10 Jun 1

Project: PROPOSED BORROW PIT - 16600 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LOUISIANA
RIVER ROAD CONSTRUCTION CO. - MANDEVILLE, LOUISIANA

Recorded By: D. A. Hi

Sample No.	SAMPLE Depth in Feet From	To	STRATUM Depth in feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (ft)	UNCONFINED COMP. (qu) (lbs/sq.ft)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I.
1	.0	.5	.0						37.0					
2	2.5	3.0		MEDIUM STIFF BROWN & TAN CLAY W/TRACE ORGANIC *(CH)*				1045	42.8	66.9	95.5	71	24	47
			3.5											
3	5.5	6.0					5							
4	8.5	9.0		VERY SOFT GRAY CLAY W/MUCH WOOD *(CH)*					76.5			103	26	7
							10							
5	11.5	12.0						205	122.9	37.0	82.5			
			13.0											
6	14.5	15.0					15	940*	28.1	89.5	114.7		(97)	
7	19.5	20.0		LOOSE GRAY CLAYEY SILT W/SAND LENSES & LAYERS *(ML)*			20	890*	37.3	77.9	106.9	33	27	6
			22.0											
8	24.5	25.0		LOOSE GRAY SANDY SILT *(ML)*			25	710*	33.3	83.5	111.3		(65)	
			26.5											
9	29.5	30.0					30	600	78.4	51.7	92.3	90	33	5
10	34.5	35.0		SOFT GRAY CLAY W/SAND LENSES *(CH)*			35	435	46.3	68.2	99.8			
11	39.5	40.0					40							
12	44.5	45.0					45	475	90.5	46.2	88.0			
			47.5											
13	49.5	50.0					50		33.8					
14	54.5	55.0		LOOSE GRAY SILTY FINE SAND W/CLAY LAYERS *(SM)*			55	820*	28.1	90.3	115.7			
15	59.5	60.0					60		28.5					
			60.0											

CLAY SILT SAND ORGANIC

*140 lb. hammer dropped 30 in. on 2 in. splitspoon sampler after first holes seated 6 in.

Values in parenthese indicate Percent Passing No. 200 Sieve.
REMARKS: *equivalent Qu from 1-point triaxial test
WATER TABLE AT 6.2' (SEE TEXT)
() Indicate Unfied Soils Classification

Fig. 7

GORE ENGINEERING, INC.

SOIL AND FOUNDATION INVESTIGATIONS

AWRENCE W. GILBERT, D. ENGR.
REG. C.E.

JAMES R. GORE
(1962 - 1991)

BORINGS
ANALYSES

TESTING
REPORTS

3613 HESSMER AVENUE
P. O. BOX 8867
METAIRIE, LOUISIANA 70011

(504) 888-6690
FAX: (504) 888-6827

10 May, 2004

Waste Management
c/o Perrin & Carter, Inc.
3501 Ridgelake Drive
Metairie, Louisiana 70002

Subsoil Investigation
Proposed Building
Chef Menteur Transfer Station
16400 Chef Menteur Highway
New Orleans, Louisiana

Gentlemen:

Herein is our report on the results of a subsoil foundation investigation made for the subject project.

Yours very truly,

GORE ENGINEERING, INC.

Lawrence W. Gilbert

LWG:sd

2004
BORINGS

SUBSOIL INVESTIGATION

PROPOSED BUILDING
CHEF MENTEUR TRANSFER STATION

16400 CHEF MENTEUR HIGHWAY

NEW ORLEANS, LOUISIANA

PROJECT NO. 8500

FOR
WASTE MANAGEMENT

PERRIN & CARTER, INC.
CONSULTING ENGINEERS
METAIRIE, LOUISIANA

GORE ENGINEERING, INC.
SOIL AND FOUNDATION INVESTIGATIONS
METAIRIE, LOUISIANA

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SUBSOIL INVESTIGATION
PROPOSED BUILDING
CHEF MENTEUR TRANSFER STATION
CHEF MENTEUR HIGHWAY
NEW ORLEANS, LOUISIANA

INTRODUCTION

1. This report contains the results of a subsoil foundation investigation made at the subject site. Instructions to proceed with the investigation were received on February 25, 2004 from Michael A. Carter of Perrin and Carter, Inc., Consulting Engineers for the project. The study was made for Waste Management.

2. The study included the drilling of soil test borings to determine subsurface conditions and stratification and the performance of soil mechanics laboratory tests on samples obtained from the borings to evaluate their physical characteristics. Engineering analyses were made, based on the borings and test data to develop criteria to be used in foundation design.

SOIL BORINGS

Field Exploration

3. Four (4) undisturbed sample type soil test borings (B-1 thru B-4) were drilled to depths of 100 to 115 ft. during the period of March 24-April 20, 2004. The borings were made with a truck mounted drill rig at designated locations approximately as shown in plan on Figure 1. Borings B-1 and B-2 were drilled at the base of the earth mound that comprises the existing transfer facility. Borings B-3 and B-4 were made from the top of the

mound. Undisturbed sampling was performed continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube sampler. Representative samples were cut from the cores and placed in moisture proof containers for preservation until laboratory testing could be performed.

4. When cohesionless material was encountered, which could not be sampled by undisturbed methods, the Standard Penetration Test was performed. This test consists of driving a two inch diameter splitspoon sampler 1 ft. (after first seating it 6 inches) with a 140 lb. hammer falling 30 inches. The number of blows required to drive the sampler gives an indication of the density of the material.

LABORATORY TESTS

5. In order to develop the physical properties of the soils, soil mechanics laboratory tests were performed on samples obtained from the borings. This testing consisted primarily of Natural Moisture Content, Unit Weight and Unconfined Compression. Triaxial Shear and Grain Size (percent passing the No. 200 Sieve) tests were performed on some of the more granular materials and Atterberg Limits were performed on selected cohesive samples. The results of all the laboratory tests are tabulated along side the boring logs at the appropriate sample and depth on Figures 2 thru 5.

6. The Unconfined Compression and Triaxial Shear tests give a measure of "skin friction" values used to estimate pile load capacities. The Atterberg Limits along with the Natural Moisture Content tests give an indication of the compressibility of the soils and are

used empirically to estimate settlements. The Grain Size tests are used to classify the more granular soils.

SUBSOIL CONDITIONS

7. A subsoil profile developed from the borings showing the general stratification and character of the soils is given on Figure 1. Logs of the individual borings showing the detailed stratification and sample depths are given on Figures 2 thru 5. Logs of the same borings relative to the ground surface elevation at the boring locations are given on Figures 6 thru 9.

Subsoil Description

8. As discussed above, borings B-1 and B-2 were both drilled at the ground level, whereas borings B-3 and B-4 were drilled from the top of the earth mound. For purpose of this subsoil profile and based on a furnished topographic survey, it was assumed that the ground surface elevation at borings B-1 and B-2 is at Elev. +20 and the ground surface elevation at borings B-3 and B-4 is at Elev. +34, or 14 ft. higher.

9. Reference to the subsoil profile and logs of borings B-1 thru B-4 shows that beginning at the ground surface there is 1 to 2½ ft. of limestone, shell, gravel or crushed asphalt with some sand (fill). Below this there is stiff tan and gray, gray or gray and tan silty clay or clay that extends to Elev. +16 to +31. This is primarily underlain by medium stiff to stiff tan and gray, gray and tan or gray clay or silty clay to Elev. +3 to +5½. Below this there is loose to medium dense gray silty fine sand or sand to Elev. 0 to -10. The subsoils

below this become cohesive and generally consist of very soft to medium stiff gray clay or sandy clay to Elev. -22 to -27½. Beginning at this depth there is loose to medium dense gray silty fine sand to Elev. -38½ to -54½ and then medium dense to dense gray silty fine sand or sand that extends to at least Elev. -80 to -81, the maximum depth explored.

10. **Groundwater** At the time of making the borings, groundwater was measured at depths of 6.3 and 7.5 ft. below the existing ground surface elevation in borings B-2 and B-1, respectively. Groundwater was measured at depths of 11.6 and 12.0 ft. below existing surface in borings B-3 and B-4. Ground water was measured shortly after making the borings and may not have become fully static at the time of measurement. In any event, groundwater could fluctuate due to seasonal precipitation, drainage, prolonged drought, etc. If groundwater is important to construction, it should be measured at that time.

FOUNDATION ANALYSIS

11. It is understood that the proposed construction will consist of a Metal Building covering an existing Waste Transfer Station in the area of borings B-1 thru B-4 and approximately as shown in plan on Figure 1. This will include a clear span building, approximately 145 ft. by 204 ft. in plan, with adjoining entrance and exit clear span structures, each nominally 75 ft. by 78 ft. in plan. Furnished survey data indicates that the elevated earth mound is about 14 ft. higher than the prevailing natural ground surface. It is further understood that this facility was initially constructed about ten (10) years ago. Exact design column loads for the new structure are not known at this time, but it is understood that they will include both compression, tension, or uplift, and lateral loading. In view of the

above, analyses were made with regard to piles for support of the proposed structure. Results of these analyses are given in the following section.

Pile Foundations

12. Analyses were made based on borings B-1 thru B-4 to estimate the load carrying capacities of several types and lengths of piles. For lightly loaded appurtenant structures, consideration was given to small timber piles having a 6 inch tip and an 8 inch butt. Analyses were also made with regard to Class "B" timber piles, 12 inch diameter steel pipe piles and 12 inch square prestressed concrete piles. The piles will generally receive their support through "skin friction" along their embedded length until the sands that begin at about the 45 to 50 ft. depth (below the prevailing ground surface) are reached. Piles driven to firm embedment into the underlying sands would also receive additional "point" support for piles used in compression. Shorter piles and piles used in tension, or uplift, would receive their capacity only through "skin friction" support.

13. **Estimated Pile Load Capacities** The results of analyses to estimate pile load capacities in compression and tension, or uplift, are given in the following table. Analyses were made based on all four (4) borings and general similarity exists. Consequently, given in the following table are recommended values that could be used for design within the area explored. Pile lengths given are as measured from the prevailing ground surface elevation in the area of the facility (approximate Elev. +20). Any pile length needed above this reference elevation should be added to the tabulated lengths.

ESTIMATED SINGLE PILE LOAD CAPACITY IN TONS
FACTOR OF SAFETY = 2.0 IN COMPRESSION
FACTOR OF SAFETY = 3.0 IN TENSION

LENGTH OF* PILE IN FEET	Small Timber 6" tip - 8" butt		Class "B" Timber		12" Dia. Pipe		12" Sq. Concrete	
	Comp.	Tens.	Comp.	Tens.	Comp.	Tens.	Comp.	Tens.
40	8	5½	11	7½	--	--	--	--
45	--	--	12½	8½	--	--	--	--
50	--	--	14	9½	--	--	--	--
55 to 60±*	--	--	20	11	30	12½	40	16
65 to 70±*	--	--	25	14	45	16	60	21
75 to 80±*	--	--	--	--	60	21	75	27
85 to 90±*	--	--	--	--	70	26	90	33

* Lengths measured from prevailing ground surface (approximate Elev. +20).

** Pile tips in sand.

The foregoing estimated pile load capacities contain factors of safety of 2.0 against failure in compression and 3.0 in tension, or uplift, which are recommended for design. However, lesser factors of safety could be considered for transient loads of short duration such as design wind loads. They do not lateral capacity, drag load, group effect or settlements, as will discussed.

14. **Lateral Capacity** The pile load capacities given above are axial capacities of vertical piles. It is understood that some of the pile caps will be subjected to lateral loading that will be resisted by batter piles. For this case, the lateral capacity of the battered piles could be taken as the horizontal component of the axial pile load capacity, depending upon the batter selected.

15. It was requested that some discussion with regard to lateral deflection be offered. It is understood that preliminary calculations indicate two types of pile caps. One consists of a four pile cap of 12 inch diameter steel pipe piles, filled with concrete to the mud plug and battered on 1 vertical on 4 horizontal in both directions. The other pile cap is supported on eight piles and is located adjacent to an existing sheet pile bulkhead wall. Four of the 12 inch diameter steel pipe piles will be driven vertically adjacent to the sheetpile wall and four will be driven on a one vertical on four horizontal batter away from the wall. Both pile caps will be subjected to a maximum lateral force of about 47 kips that includes wind load. The sustained, or service, lateral load is about 20 kips.

16. No detailed analyses were made to estimate lateral deflections, but the following general discussion is offered. Assuming that the steel pipe piles are driven to firm embedment into the underlying sands, as discussed above, it is believed that lateral deflections should be small and to be tolerable considering the type of structure. It is believed that lateral deflection should not exceed about ½ to 1 inch with the greater deflection occurring during the maximum lateral load induced by wind. This is based on the magnitude of the lateral loads as compared to the type, number and depth of embedment of the pipe piles.

17. <u>Drag Load</u> When fill is placed on the site, the underlying compressible soils consolidate, resulting in surface settlement. As the compressible soils consolidate, "negative skin friction" or downdrag may be imparted on piles. This could result in an extraneous load, additive to any structural load, on the piles and could increase settlements of the structure. It is our opinion that drag load is dependent on the thickness of

fill, compressibility of the soils, time rate of consolidation and pile length. If 2 ft. of new fill or less is required and assuming piles driven to firm embedment into sand are used for support, drag load should be unimportant to design. However, it is recommended that this fill be placed as soon as practical prior to construction. If more than 2 ft. of new fill is required, further consideration should be given to the effects of drag load.

18. **Group Effect** The effect of pile grouping on the single pile load capacities is dependent on pile spacing, pile length and soil characteristics throughout the pile length and below the pile tips. Assuming a minimum center to center spacing of 3 ft., group effect should be unimportant for pile clusters of less than 6 piles for piles not penetrating the underlying sands. Group effect should also be unimportant for clusters of up to 15 piles with their tips driven to firm embedment into sand. Group effect could become important for larger clusters and should be evaluated when actual pile layouts are known as outlined in the local building code or in the criteria given in Appendix "A" following the text.

19. **Estimated Settlements** Assuming that piles driven to firm embedment into sand are used for support, settlements are estimated to be on the order of ¾ to 1 inch. This assumes that the recommended capacities are used for design and that pile clusters would be on the order of 4 to 8 piles, as discussed above. Settlements would increase with the size of the pile cluster and, if larger cluster of closely spaced piles are needed for support, detailed settlement analyses should be made.

20. **Pile Driving** Some discussion with regard to pile driving appears warranted. In general, driving of small timber piles should be limited to the rate of 10 to 12 blows per foot using a Vulcan No. 2 hammer or a 2000 to 3000 lb. drop hammer falling 5 ft. Driving of Class "B" timber piles should be limited to the rate of 25 blows per foot using a Vulcan No. 1 hammer or equivalent. Driving of the steel pipe piles should be limited to the rate of 50 to 75 blows per foot using a hammer developing about 20,000 ft.-lbs. of energy per blow. These recommendations are given in order to minimize possible damage to the piles.

21. Piles with tips above the loose to medium dense sands should be able to be driven with normal effort not exceeding the above limitations. Driving of piles into the underlying sand could be erratic. If piles with tips in the sand are selected for design, it is recommended that probe types piles be driven throughout the site to establish driving characteristics and pile lengths. While it is believed the piles could be driven to the depths into the sand indicated above without severe damage, the piles should be closely observed and, if "refusal" or little or no penetration under several successive blows occurs, driving should be ceased.

22. While generally not believed needed for pile installation, it is recommended that provisions be made available for predrilling of the piles used for support of the proposed structure. As discussed above, it is understood that some of the piles will be driven in close proximity to an existing sheet pile bulkhead wall. Details of the wall construction are not known. In view of this, it is recommended that the wall be monitored during pile driving for any signs of lateral deflection. If this occurs, predrilling of the piles

should be considered. For this case, the drill bit diameter should be about two-thirds (2/3) of the pile tip diameter. Predrilling should be ceased at about the 40 ft. depth below the prevailing ground surface elevation. The piles should then be driven with normal effort to firm embedment into the underlying sands as discussed above.

23. Vibrations due to pile driving activities should be expected and they should be monitored during the driving of probe piles and job piles. In general, vibrations should be limited to about 0.25 inch/sec. (peak particle velocity) at all existing nearby sensitive structures. If this value is exceeded, further consideration should be given to the effects of vibrations.

GORE ENGINEERING, INC.

Lawrence W. Gilbert

Minimum Pile Spacing

$$SPAC = 0.05\,L_1 + 0.025\,L_2 + 0.0125\,L_3 \text{ (Min.3.0 ft.)}$$

SPAC = Center to center spacing of piles (ft.)

L_1 = Pile penetration in ft. up to 100 ft.

L_2 = Pile penetration in ft. from 101 to 200 ft.

L_3 = Pile penetration in ft. from 200 to 300 ft.

Allowable Group Capacity*

$$Q_a = \frac{P \times L \times c}{FSF} + \frac{2.6q_u\,(1 + 0.2\,\frac{w}{b})\,A}{FSB}$$

P = Perimeter distance of pile group (ft.)

L = Length of pile (ft.)

c = Average (weighted) shear strength ($\frac{1}{2}q_u$) of soil throughout pile length (lbs./sq.ft.)

q_u = Unconfined compressive strength of soils below pile tips (lbs./sq.ft.)

w = Width of base of pile group (ft.)

b = Length of base of pile group (ft.)

A = Base area of pile group (sq. ft.)

FSF = Factor of safety for friction area = 2

FSB = Factor of safety for base area = 3

*In no case should the recommended single pile load capacity be exceeded.

Appendix "A"

GORE ENGINEERING, INC.

Job No. 8500

Soil and Foundation Investigations
Metairie, Louisiana

ing No. B-1

LOG OF BORING AND TEST RESULTS

Date Boring Drilled: 24 March 2004

ect: PROPOSED BUILDING - CHEF MENTEUR TRANSFER STATION - 16400 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LA.
FOR: WASTE MANAGEMENT
P[illegible]N & CARTER, INC. - CONSULTING ENGINEERS - METAIRIE, LA.

Recorded By: Don Tusa

ple	SAMPLE Depth in Feet From	SAMPLE Depth in Feet To	STRATUM Depth in Feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (feet)	UNCONFINED COMPRESSION (Qu) (lbs./sq.ft.)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	UNIT WEIGHT (lbs./cu.ft.) WET	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.L.	ATTERBERG LIMITS P.I.
			.0				0							
			2.0	CRUSHED ASPHALT & LIMESTONE (FILL)										
	2.5	3.0	4.0	STIFF TAN & GRAY CLAY				2515	38.2	79.9	110.4			
	5.5	6.0	7.0	MEDIUM STIFF TAN & GRAY CLAY				1840	37.9	81.0	111.7	67	20	47
	8.5	9.0		MEDIUM STIFF			10	1930	48.8	72.1	107.3	88	36	52
	11.5	12.0	14.5	GRAY & TAN CLAY				1730	49.0	71.2	106.1			
	14.5	15.0							25.3					
	19.5	20.0		LOOSE GRAY SILTY FINE SAND			20	1020	29.7	87.7	113.8		(40)	
	24.5	25.0		W/ CLAY LAYERS					23.4					
	29.5	30.0	30.0				30	975	29.8	87.8	114.0			
	31.0	31.5												
)	34.5	35.0		SOFT TO MEDIUM STIFF GRAY CLAY W/ SAND LENSES				620	45.9	71.9	104.9	55	31	24
1	39.5	40.0	42.0				40	1095	76.0	53.4	94.0			
2	44.5	45.0	45.0	LOOSE GRAY CLAYEY FINE SAND W/ SHELL FRAGMENTS				875	31.5	80.8	106.3			
3	49.5	50.0		LOOSE TO MEDIUM DENSE GRAY SILTY FINE SAND			50	980	26.6	92.7	117.4			
4	50.0	51.5			10				26.1					
5	57	54.0			13									
5	57.5	58.0	58.0	(W/ CLAY LAYERS @ 57.5'-58.0')					32.3					
7	58.0	59.5			25		60		25.5					
8	61.0	62.5			13									
9	63.5	65.0			30 = .9'				30.2				(50)	
9	68.5	70.0			19		70							
	73.5	75.0		MEDIUM DENSE TO DENSE GRAY SILTY FINE SAND	13				28.1					
	78.5	80.0			21		80							
	83.5	85.0	88.5		30 = .6'				30.6				(31)	
	88.5	90.0		VERY DENSE GRAY SILTY FINE SAND	30 = .5'		90							
	93.5	95.0		MEDIUM DENSE TO DENSE GRAY SILTY FINE SAND	24									
	98.5	100.0	100.0		30		100		26.3				(28)	
							110							
							120							

NOTE: VALUES IN PARENTHESES ( ) INDICATE PERCENT PASSING NO. 200 SIEVE.

CLAY SILT SAND ORGANIC

dominant Type Bold. Modifying Type Light.

*140 lb. hammer dropped 30 inches on 2 inch splitspoon sampler after first being seated 6 inches.

REMARKS: Water Table Depth = 7.5 ft (See Text)

Fig. 2

GORE ENGINEERING, INC.

Job No. 8500

Soil and Foundation Investigations
Metairie, Louisiana

ng No. B-2

LOG OF BORING AND TEST RESULTS

Date Boring Drilled: 12 April 2004

ect: PROPOSED BUILDING - CHEF MENTEUR TRANSFER STATION - 16400 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LA.
FOR: WASTE MANAGEMENT
P[illegible]N & CARTER, INC. - CONSULTING ENGINEERS - METAIRIE, LA.

Recorded By: Don Tusa

ple	SAMPLE Depth in Feet From	SAMPLE Depth in Feet To	STRATUM Depth in Feet	VISUAL CLASSIFICATION	* Blows per Foot	Symbol Log	Scale (feet)	UNCONFINED COMPRESSION (Qu) (lbs./sq.ft.)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	UNIT WEIGHT (lbs./cu.ft.) WET	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.L.	ATTERBERG LIMITS P.I.
			.0	LIMESTONE, GRAVEL & SHELL W/ SOME SAND (FILL)			0							
			2.5											
	3.5	4.0	4.0	STIFF GRAY & TAN CLAY				2025	40.1	78.7	110.3			
	5.5	6.0		MEDIUM STIFF GRAY & TAN CLAY				1780	34.8	85.2	114.9			
	8.5	9.0					10	1140	39.6	79.3	110.7			
	11.5	12.0	12.0					1545	50.0	70.1	105.2			
	14.5	15.0	15.0	SOFT GRAY & TAN CLAY W/ TRACE WOOD & ORGANIC				750	66.2	60.5	100.6	99	30	69
	19.5	20.0		LOOSE GRAY SILTY FINE SAND W/ CLAY LAYERS			20	1400+	26.8	92.2	116.9			
	22.0	23.5	22.0	MEDIUM DENSE GRAY SILTY FINE SAND	23				25.4					
	26.0	26.5	25.0											
	29.5	30.0		VERY SOFT TO SOFT GRAY CLAY W/ SAND LENSES			30	545	61.6	61.0	98.6	91	29	62
	34.5	35.0						455	52.7	68.0	103.8			
	39.5	40.0	38.5	MEDIUM STIFF GRAY CLAY W/ SAND LENSES			40	1060	75.2	54.9	96.1			
	44.5	45.0	42.0	VERY SOFT GRAY SANDY CLAY W/ SHELL FRAGMENTS				290	31.3	84.3	110.7	30	20	10
	49.5	50.0	45.0	LOOSE GRAY SILTY FINE SAND			50	920+	24.7	94.5	117.8			
	54[illegible]	55.0		(W/ SILTY CLAY LAYER @ 47.0'-48.5')				1090+	32.0	83.9	110.7			
	55.5	57.0	55.5	MEDIUM DENSE	27				25.5					
	58.5	60.0		GRAY SILTY FINE SAND	11		60							
	64.5	65.0	61.0	LOOSE GRAY SILTY FINE SAND W/ CLAY LAYERS				800	29.5	87.3	113.1			
	66.0	67.5	66.0		19				26.4					(47)
	68.5	70.0			18		70							
	71.0	72.5			25				25.3					(19)
	73.5	75.0			26									
	78.5	80.0		MEDIUM DENSE TO DENSE GRAY SILTY FINE SAND	30		80		26.2					
	83.5	85.0			11									
	88.5	90.0	88.5		30 = .6'		90		23.1					(21)
	93.5	95.0		DENSE GRAY SILTY FINE SAND	30 = .6'									
	98.5	100.0	100.0		30 = .6'		100		23.2					
							110							
							120							

NOTE: VALUES IN PARENTHESES ( ) INDICATE PERCENT PASSING NO. 200 SIEVE.

CLAY SILT SAND ORGANIC
dominant Type Bold. Modifying Type Light.

* 140 lb. hammer dropped 30 inches on 2 inch splitspoon sampler after first being seated 6 inches.

REMARKS: Water Table Depth = 6.3 ft (See Text)

+ equivalent Qu from 1-point triaxial test

Fig. 3

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

Job No. 8500

ng No. B-3

LOG OF BORING AND TEST RESULTS

Date Boring Drilled: 20 April 2004

ect: PROPOSED BUILDING - CHEF MENTEUR TRANSFER STATION - 16400 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LA.
FO[illegible] WASTE MANAGEMENT
P[illegible]N & CARTER, INC. - CONSULTING ENGINEERS - METAIRIE, LA.

Recorded By: Don Tusa

ple	SAMPLE Depth in Feet From	To	STRATUM Depth in Feet	VISUAL CLASSIFICATION	* Blows per Foot	Symbol Log	Scale (feet)	UNCONFINED COMPRESSION (Qu) (lbs./sq.ft.)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I.
			.0				0							
			1.0	LIMESTONE, SHELL & GRAVEL W/ SOME SAND (FILL)										
	2.5	3.0	3.0	STIFF GRAY SILTY CLAY				3335	23.3	96.4	118.8			
	5.5	6.0		MEDIUM STIFF				1850	19.5	92.0	109.9			
	8.5	9.0		GRAY SILTY CLAY			10	1670	21.0	92.5	111.9	38	20	18
	11.5	12.0		W/ WOOD				1165	22.9	94.4	116.0			
			13.5											
	14.5	15.0						1110+	23.0	87.7	107.9			
				LOOSE GRAY CLAYEY SILT										
	19.5	20.0					20	1410+	20.0	98.6	118.3			
			21.5											
				MEDIUM STIFF										
	24.5	25.0		GRAY & TAN CLAY				1830	33.4	82.9	110.6	87	27	60
				W/ TRACE ORGANIC										
	29.5	30.0		(FISSURED @ 29.5'-30.0')			30	620	56.9	65.2	102.3			
			31.0											
	31.0	32.5		MEDIUM DENSE GRAY FINE SAND	14				26.6					
			33.5											
	34.5	35.0		VERY SOFT GRAY CLAY				355	54.7	66.9	103.5			
				W/ SAND LENSES										
			38.0											
	39.5	40.0	40.0	LOOSE GRAY CLAYEY SILT			40	1060+	26.1	94.8	119.5			
	41.0	41.5												
	44.5	45.0		VERY SOFT TO SOFT GRAY CLAY				480	41.5	76.9	108.8	80	26	54
				W/ SAND LENSES & LAYERS										
	49.5	50.0					50	630	34.4	81.0	108.9			
			53.0											
	54[illegible]	55.0	55.0	MEDIUM STIFF GRAY CLAY W/ SAND POCKETS				1500	55.1	63.4	98.4			
				VERY SOFT										
	59.5	60.0		GRAY SANDY CLAY			60		28.6					
			61.5											
	61.5	63.0			17				29.1					(28)
	65.0	66.5			23									
	68.5	70.0			14		70		22.0					(23)
				MEDIUM DENSE										
	73.5	75.0		GRAY SILTY FINE SAND	15									
	78.5	80.0			23		80		22.1					
	83.5	85.0			14									
			87.5											
	88.5	90.0			30		90		24.3					(13)
	93.5	95.0			30 = .6'									
	98.5	100.0			29		100		25.1					
				DENSE GRAY SILTY FINE SAND										
	103.5	105.0			30 = .7'									
	108.5	110.0			30 = .6'		110							
	113[illegible]	5.0	115.0		30 = .5'				27.1					(29)
							120							

NOTE: VALUES IN PARENTHESES ( ) INDICATE PERCENT PASSING NO. 200 SIEVE.

CLAY SILT SAND ORGANIC

Dominant Type Bold. Modifying Type Light.

* 140 lb. hammer dropped 30 inches on 2 inch splitspoon sampler after first being seated 6 inches.

REMARKS: Water Table Depth = 11.6 ft (See Text)

+ equivalent Qu from 1-point triaxial test

Fig. 4

GORE ENGINEERING, INC.

Soil and Foundation Investigations
Metairie, Louisiana

Job No. 8500

ing No. B-4

LOG OF BORING AND TEST RESULTS

Date Boring Drilled: 13 April 2004

iect: PROPOSED BUILDING - CHEF MENTEUR TRANSFER STATION - 16400 CHEF MENTEUR HIGHWAY - NEW ORLEANS, LA.
FOR: WASTE MANAGEMENT
[illegible]IN & CARTER, INC. - CONSULTING ENGINEERS - METAIRIE, LA.

Recorded By: Don Tusa / Stephen E. Wale

ple	SAMPLE Depth in Feet From	To	STRATUM Depth in Feet	VISUAL CLASSIFICATION	*Blows per Foot	Symbol Log	Scale (feet)	UNCONFINED COMPRESSION (Qu) (lbs./sq.ft.)	WATER CONTENT (percent)	UNIT WEIGHT (lbs./cu.ft.) DRY	WET	ATTERBERG LIMITS L.L.	P.L.	P.I.
			.0				0							
			2.0	LIMESTONE, GRAVEL & BROKEN CONCRETE W/ SAND (FILL)										
	3.5	4.0						2765	22.9	95.4	117.2			
	5.5	6.0		STIFF GRAY SILTY CLAY				3630	19.0	100.8	119.9			
	8.5	9.0		W/ WOOD			10	3145	19.5	95.1	113.7			
	11.5	12.0						2845	20.1	93.2	111.9			
			13.0											
	14.5	15.0												
				MEDIUM STIFF										
	19.5	20.0		GRAY SILTY CLAY			20	1115	31.7	84.4	111.2			
			22.0											
	24.5	25.0		STIFF GRAY & TAN CLAY				700	28.3	87.1	111.8			
				W/ SILT & WOOD										
	29.5	30.0		(FISSURED @ 24.5'-25.0')			30	2570	41.9	75.5	107.2			
			30.5											
	31.0	31.5	31.5	VERY SOFT GRAY SANDY CLAY				295	30.0	88.3	114.8			
)	31.5	33.0	34.0	MEDIUM DENSE GRAY FINE SAND	14				23.9					
.	34.0	35.5			4									
!	39.5	40.0					40	975	44.8	75.3	109.0	59	22	37
				SOFT TO MEDIUM STIFF GRAY CLAY										
;	44.5	45.0		W/ SAND LAYERS				715	51.0	68.8	103.9			
:	49.5	50.0					50	1565	55.7	65.1	101.3			
			52.0											
:	5[illegible]	55.0		MEDIUM STIFF GRAY CLAY W/ SAND POCKETS & LENSES				1770	58.7	62.6	99.3			
			56.0											
				VERY SOFT GRAY CLAY										
	59.5	60.0		W/ SAND POCKETS			60	330	42.8	74.0	105.7	67	20	47
			61.5											
	61.5	63.0			20				28.6				(15)	
	64.0	65.5			20									
	68.5	70.0			13		70		27.9				(31)	
	73.5	75.0		MEDIUM DENSE GRAY SILTY FINE SAND	11									
	78.5	80.0			18		80		26.7				(14)	
	83.5	85.0			29									
			88.5											
	88.5	90.0			30 = .8'		90		26.1				(9)	
	93.5	95.0		DENSE GRAY FINE SAND	32									
			98.5											
	98.5	100.0		MEDIUM DENSE GRAY FINE SAND	21		100		26.2					
			103.5											
	103.5	105.0			30 = .6'									
	108.5	110.0		DENSE GRAY FINE SAND	30		110		25.4				(10)	
	113[illegible]	15.0	115.0		31									
							120							

NOTE: VALUES IN PARENTHESES ( ) INDICATE PERCENT PASSING NO. 200 SIEVE.

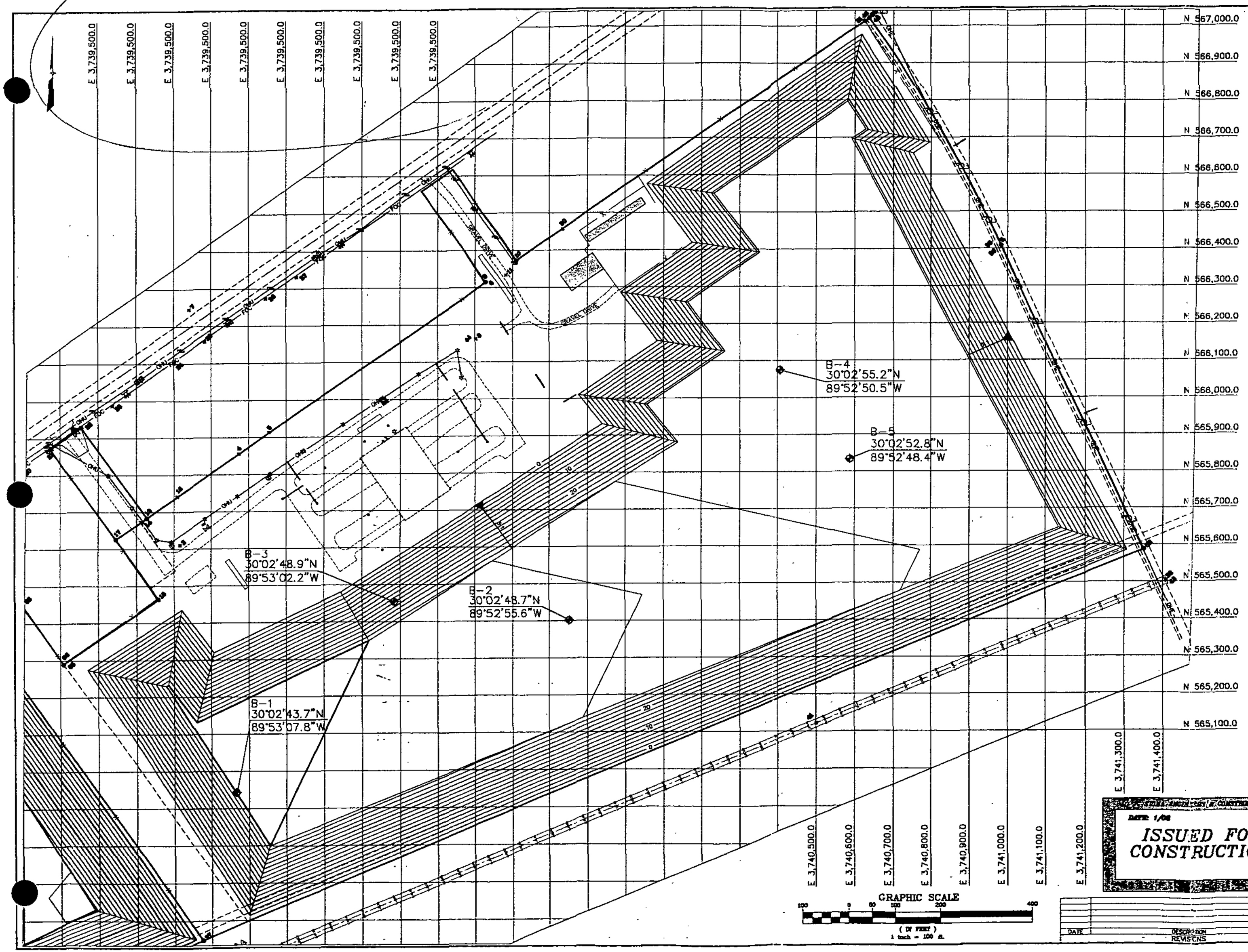
CLAY SILT SAND ORGANIC

Iominant Type Bold. Modifying Type Light.

*140 lb. hammer dropped 30 inches on 2 inch splitspoon sampler after first being seated 6 inches.

REMARKS: Water Table Depth = 12.0 ft (See Text)

Fig. 5



SHEET 2

CONTROL POINT DATA					
POINT NUMBER	SITE COORDINATES		TOP OF GRADE	TOP OF GRADE	DESCRIPTION
	NORTHING	EASTING	DESIGN (FT.)	RECORD (FT.)	
1	564777.58	3739522.08	11.07	18	
2	564499.70	3738983.56	-0.43	18	
3	565051.19	3739770.57	0.44	18	
4	564745.84	3739140.31	1.13	23	
5	564803.14	3739222.27	3.07	23	
6	565203.74	3739796.35	5.24	18	
7	565135.98	3739009.35	2.43	5	
8	565297.09	3741151.58	2.38	20	
9	565204.31	3739796.02	1.35	23	
10	565281.34	3739878.18	2.89	23	
11	565223.26	3739848.48	1.47	5	
12	564397.10	3739481.28	-3.42	23	
13	564573.77	3738894.69	-0.10	23	
14	564583.33	3738879.77	1.07	23	
15	564354.55	3738925.76	-0.74	25	
16	564631.36	3738978.16	-0.18	23	
17	564516.17	3738813.13	1.65	25	
18	564590.37	3738394.91	2.27	18	
19	564647.61	3738476.93	2.25	20	
20	564704.60	3738558.61	1.55	20	
21	564762.12	3738640.79	2.34	18	
22	564819.48	3738722.74	2.17	23	
23	564877.03	3738804.59	1.72	18	
24	564991.76	3738968.40	2.95	23	
25	565048.94	3739050.36	2.54	23	
26	565163.28	3739214.28	2.43	49	
27	565220.71	3739296.78	1.57	24	
28	566215.67	3740689.73	2.21	5	
29	564804.03	3740060.24	-1.74	23	
30	565346.58	3740001.57	1.00	20	
31	565901.26	3740793.66	0.01	23	
32	564392.52	3741576.26	6.92	5	
33	563744.65	3737984.59	0.11	5	
34	564127.74	3737709.49	3.12	5	
35	565297.09	3741151.58	2.38	20	
36	564590.44	3738395.02	2.28	18	
37	563438.07	3739042.88	2.48	18	
38	563379.21	3739161.54	6.12	5	
39	563137.13	3738325.33	0.56	18	
40	563047.36	3738371.02	6.61	5	
41	564011.22	3740668.01	4.75	5	
42	564392.42	3741576.06	7.03	5	
43	565900.81	3740793.70	0.10	18	
44	565051.20	3739770.57	0.45	18	
45	565909.67	3740805.63	1.59	23	
46	564070.89	3737659.99	1.77	20	
47	564130.78	3737740.27	2.33	20	
48	564189.24	3737821.33	2.25	23	
49	564303.79	3737985.38	2.87	23	
50	563883.28	3737426.12	1.74	23	
51	563888.71	3737916.62	2.43	20	

NOTES:

1. ALL LAYOUT POINTS BASED ON A STATE PLANE COORDINATE SYSTEM (SEE SHEET 2).

LEGEND:

3:1 SIDE SLOPE

DATE: 1/06

ISSUED FOR CONSTRUCTION

DATE	DESCRIPTION REVISIONS	BY

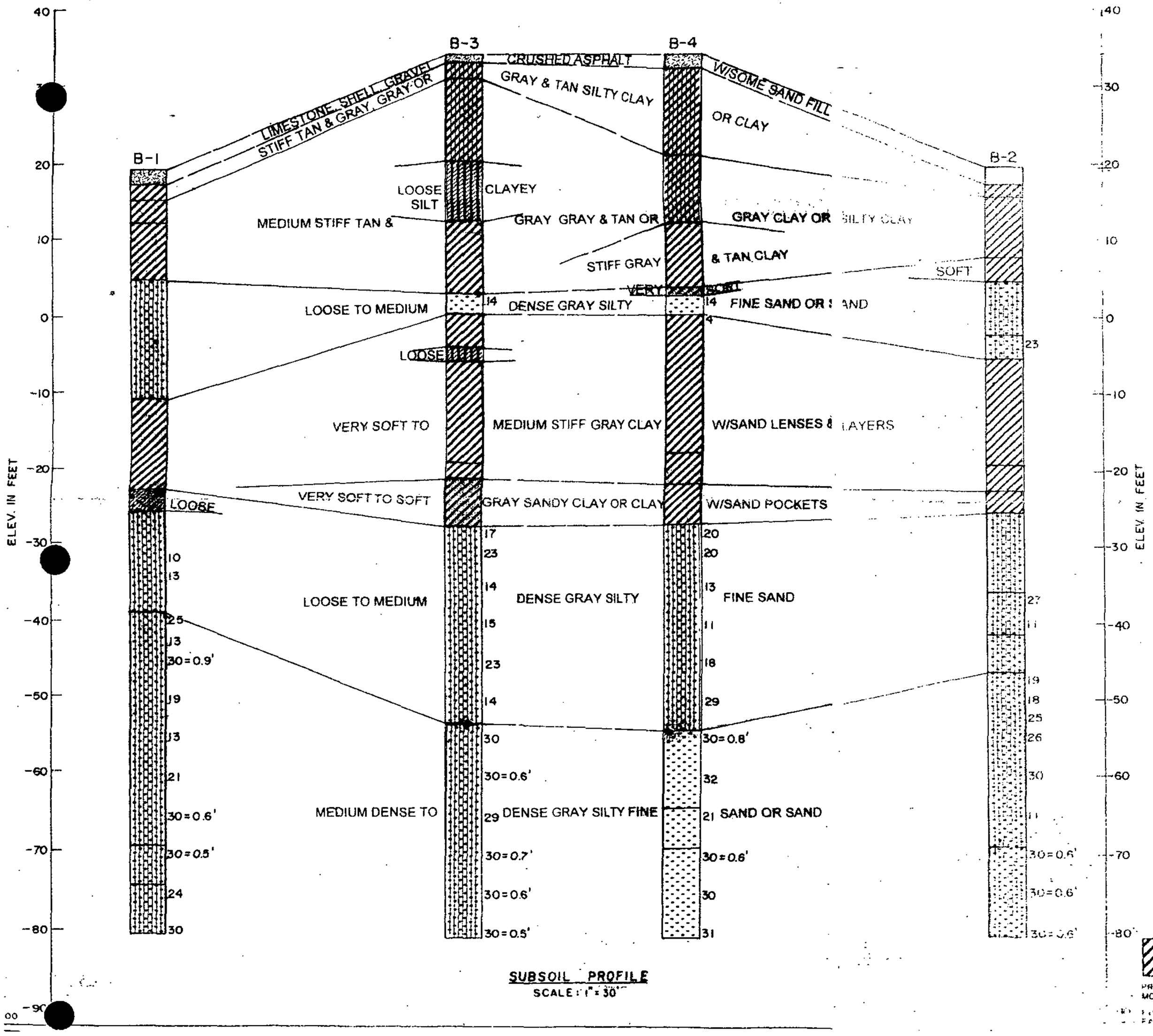
CELL 1 BASE GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

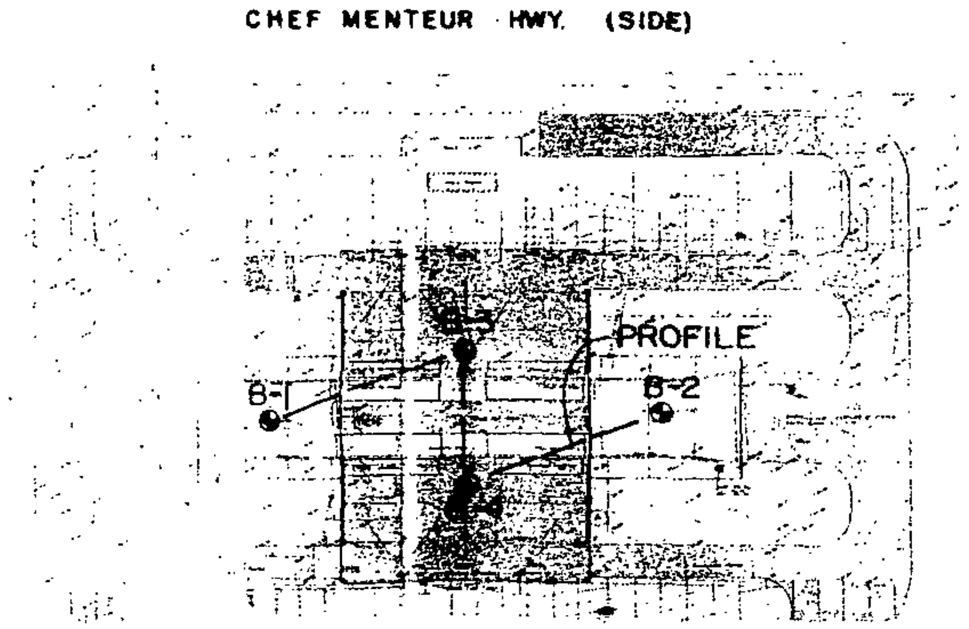
WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

2006 BORINGS



SUBSOIL PROFILE
SCALE: 1" = 30'



BORING LOCATIONS
SCALE: 1" = 100'

LEGEND

CLAY SILT SAND ORGANIC

PREDOMINANT TYPE HEAVY
MODIFYING TYPE LIGHT

HAMMER
ONE FOOT.

SUBSOIL INVESTIGATION
PROPOSED BUILDING
CHEF MENTEUR TRANSFER STATION
16400 CHEF MENTEUR HIGHWAY
NEW ORLEANS, LOUISIANA

BORING LOCATIONS AND SUBSOIL PROFILE

FOR
WASTE MANAGEMENT

PERRIN & CARTER, INC.
CONSULTING ENGINEERS
METAIRIE, LOUISIANA

APRIL, 2004

GORE ENGINEERING, IN

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-1

SHEET 1 OF 2

FILE: 9106043
DATE: 02/14/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'43.7"
Long: 89°53'07.8"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit – Moisture Content – Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Firm to stiff light gray **SILTY CLAY (CL)**	2.0	
		▽								Firm to stiff light gray **SANDY CLAY (CL)**	4.0	
5		▽								Medium dense light gray **CLAYEY SAND (SC)** - wet at 4'	6.0	
			0.50 (P)							Loose to medium dense light gray **CLAYEY SAND (SC)**	11.0	
10			0.50 (P)							Soft to firm light gray **CLAY (CH)** - with sand seams	18.0	
			0.50 (P)									
15			0.50 (P)									
			0.50 (P)									
20										Medium dense light gray coarse **SAND (SP)** - slightly clayey		
25												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First encountered at 4 ft.
▽ Rose to 2' 6" after 20 min.

Advancement Method

0' - 6' : Short-flight auger
6' - 30' : Rotary Wash

Abandonment Method

Hole backfilled with cement-bentonite grout upon completion.

Notes

aquaterra engineering

AQ LOG SBLOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-1

SHEET 2 OF 2

FILE: 9106043
DATE: 02/14/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'43.7"
Long: 89°53'07.8"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit — Moisture Content — Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Medium dense light gray coarse **SAND (SP)** - slightly clayey *(continued)*	28.0	
										Loose to medium dense light gray coarse **SAND (SP)** - clay seams	30.0	
30										**Boring Terminated at 30 Feet.**		
35												
40												
45												
50												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

First encountered at 4 ft.
Rose to 2' 6" after 20 min.

Advancement Method

0' - 6' : Short-flight auger
6' - 30' : Rotary Wash

Abandonment Method

Hole backfilled with cement-bentonite grout upon completion.

Notes

aquaterra engineering

AQ LOG SBLOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-2

SHEET 1 OF 1

FILE: 9106043
DATE: 02/14/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'48.7"
Long: 89°52'55.6"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit — Moisture Content — Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Soft to firm light gray **SANDY CLAY (CL)**	6.0	
5										Loose to medium dense light gray **CLAYEY SAND (SC)**	10.0	
10			0.50 (P)							Soft to firm light gray **CLAY (CH)** - with sand seams	14.0	
			0.50 (P)									
15			0.50 (P)							Loose to medium dense light gray coarse **SAND (SP)** - with clay seams	20.0	
20										**Boring Terminated at 20 Feet.**		
25												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

First encountered at 8 ft.

No rise after 20 min.

Advancement Method

0' - 10' : Short-flight auger
10' - 20' : Rotary Wash

Abandonment Method

Hole backfilled with cement-bentonite grout upon completion.

Notes

aquaterra engineering

AQ LOG SOCOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-3

SHEET 1 OF 1

FILE: 9106043
DATE: 02/14/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'48.9"
Long: 89°53'02.2"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit – Moisture Content – Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
		▽								Loose to medium dense light gray **CLAYEY SAND (SC)** - coarse below 2 ft	4.0	
5										Loose to medium dense light gray coarse **SAND (SP)** - slightly clayey	6.0	
			0.50 (P)							Soft to firm light gray **CLAY (CH)** - with sand seams	8.0	
										Loose to medium dense light gray coarse **SAND (SP)** - with clay seams	10.0	
10			0.50 (P)							Soft to firm light gray **CLAY (CH)** - with sand seams		
			0.50 (P)									
15			0.50 (P)									
			0.50 (P)								17.0	
										Loose to medium dense light gray coarse**SAND (SP)**		
20										**Boring Terminated at 20 Feet.**	20.0	
25												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
▽ First encountered at 2 ft. No rise after 20 min.	0' - 2' : Short-flight auger 2' - 20' : Rotary Wash	
	Abandonment Method	
	Hole backfilled with cement-bentonite grout upon completion.	

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AQ LOG SBLOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-4

SHEET 1 OF 2

FILE: 9106043
DATE: 02/16/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'52.8"
Long: 89°52'48.4"

FIELD DATA				LABORATORY DATA							
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit – Moisture Content – Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Soft to firm light gray **SILTY CLAY (CL)** - slightly sandy	2.0	
		▽								Soft to firm light gray **SANDY CLAY (CL)**	4.0	
5										Loose to medium dense light gray **CLAYEY SAND (SC)**	6.0	
										Soft to firm light gray **SANDY CLAY (CL)**	10.0	
10										Soft to firm light gray **CLAY (CH)** - with sand seams		
15												
20												
25												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First encountered at 2' 4".

Hole caved in after 20 min.

Advancement Method

0' - 10' : Short-flight auger
10' - 35' : Rotary Wash

Abandonment Method

Hole backfilled with cement-bentonite grout upon completion.

Notes

aquaterra engineering

AQ LOG SbLOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-4

SHEET 2 OF 2

FILE: 9106043
DATE: 02/16/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'52.8"
Long: 89°52'48.4"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit — Moisture Content — Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
			0.50 (P)							Soft to firm light gray **CLAY (CH)** - with sand seams *(continued)*	28.0	
30										Loose to medium dense light gray **SAND (SP)** - with clay seams		
										- medium dense, coarse below 33'	35.0	
35										**Boring Terminated at 35 Feet.**		
40												
45												
50												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
▽ First encountered at 2' 4". Hole caved in after 20 min.	0' - 10' : Short-flight auger 10' - 35' : Rotary Wash	
	Abandonment Method	
	Hole backfilled with cement-bentonite grout upon completion.	

aquaterra engineering

AQ LOG SBLOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-5

SHEET 1 OF 2

FILE: 9106043
DATE: 02/16/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'55.2"
Long: 89°52'50.5"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit – Moisture Content – Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Firm to stiff light gray **CLAY (CH)** - slightly sandy	2.0	
		▽								Firm to stiff light gray **SANDY CLAY (CL)**	4.0	
5										Loose to medium dense light gray coarse **SAND (SC)** - slightly clayey	6.0	
10										Firm to stiff light gray **SANDY CLAY (CL)**	12.0	
										Loose to medium dense light gray coarse **SAND (SP)** - slightly clayey	14.0	
15			0.50 (P)							Firm to stiff gray **CLAY (CH)** - slightly sandy to 16'		
			0.50 (P)							- with sand seams below 16'		
20			0.50 (P)									
25			0.50 (P)									

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First encountered at 2' 6".

Hole caved in after 20 min.

Advancement Method

0' - 14' : Short-flight auger
14' - 35' : Rotary Wash

Abandonment Method

Hole backfilled with cement-bentonite grout upon completion.

Notes

aquaterra engineering

AQ LOG LOGS.9106043.GPJ AQUATERR.GDT 3/8/06

PROJECT: Subsurface Investigation
WM - Chef Mentuer C&D Site
New Orleans, Louisiana

CLIENT: Waste Management
New Orleans, Louisiana

SOIL BORING LOG

No. B-5

SHEET 2 OF 2

FILE: 9106043
DATE: 02/16/06
DRILLER: R. Warren
TECH.: A. Lyons
ENGINEER: V. Donald

Location: See Figure 2
Lat: 30°02'55.2"
Long: 89°52'50.5"

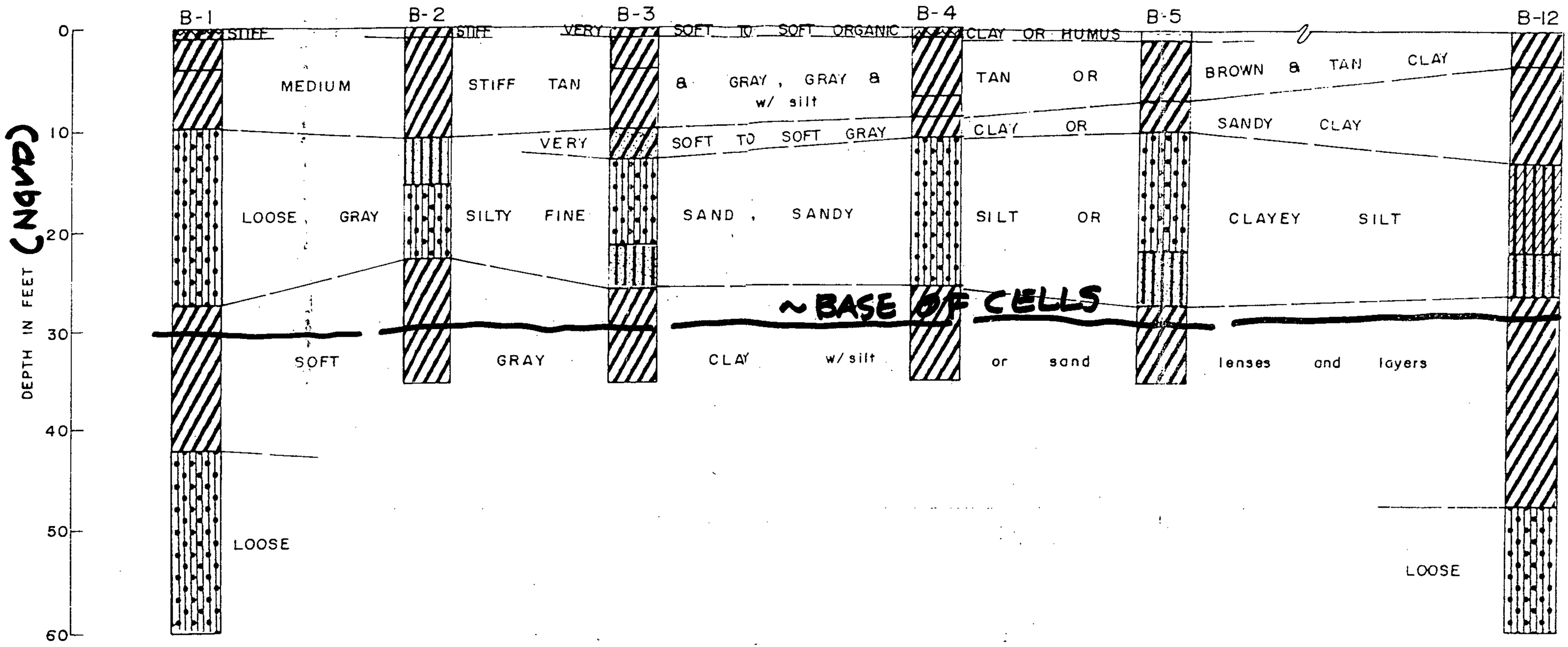
FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit — Moisture Content — Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
										Firm to stiff gray **CLAY (CH)** - slightly sandy to 16' *(continued)*	28.0	
30										Medium dense light gray coarse **SAND (SP)** - with clay seams to 30'		
35										**Boring Terminated at 35 Feet.**	35.0	
40												
45												
50												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
▽ First encountered at 2' 6". Hole caved in after 20 min.	0' - 14' : Short-flight auger 14' - 35' : Rotary Wash	
	Abandonment Method	
	Hole backfilled with cement-bentonite grout upon completion.	

aquaterra engineering

AQ LOGS.9106043.GPJ AQUATERR.GDT 3/8/06



SUBSOIL PROFILE
SCALE: 1" = 200'

FIGURE 6

T.J. McG.
J-5366

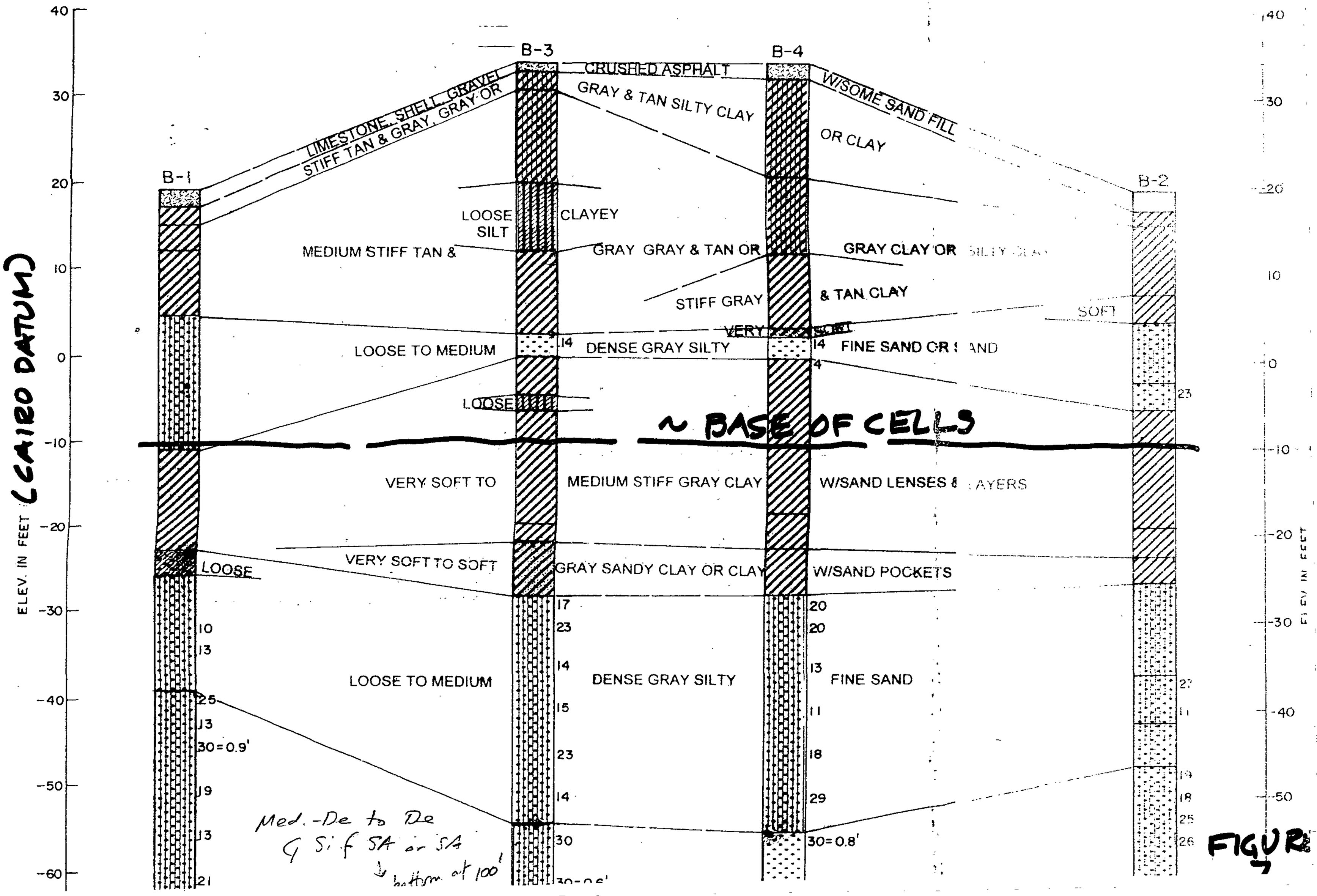

ELEV. IN FEET (CAIRO DATUM)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
B-1
B-3
B-4
B-2
LIMESTONE, SHELL, GRAVEL
STIFF TAN & GRAY, GRAY OR
CRUSHED ASPHALT
GRAY & TAN SILTY CLAY
W/SOME SAND FILL
OR CLAY
LOOSE
SILT
CLAYEY
MEDIUM STIFF TAN &
GRAY GRAY & TAN OR
GRAY CLAY OR
STIFF GRAY
& TAN CLAY
SOFT
VERY
LOOSE TO MEDIUM
14
DENSE GRAY SILTY
FINE SAND OR SAND
LOOSE
~ BASE OF CELLS
VERY SOFT TO
MEDIUM STIFF GRAY CLAY
W/SAND LENSES & LAYERS
LOOSE
VERY SOFT TO SOFT
GRAY SANDY CLAY OR CLAY
W/SAND POCKETS
10
13
25
13
30=0.9'
19
13
21
LOOSE TO MEDIUM
17
23
14
15
23
14
30
30=0.6'
DENSE GRAY SILTY
20
20
13
11
18
29
30=0.8'
FINE SAND
23
27
11
19
18
25
26
Med.-De to De
G Si f SA or SA
bottom at 100'

FIGURE 7

FIGURE 8

Z	Elev.	PROFILE	EARTH STRESSES, $\bar{\sigma}$ BEFORE BORROW PIT	AFTER PLACING C+D LF	ESTIMATED VALUES OF C_c	ESTIMATED COMPRESSION
0	79		0	0		
20						
		C+D WASTE $\gamma_{tot} = 50$ pcf			N/A	Use the relationship: $\Delta H = H_0 \frac{C_c}{1+e_0} \log_{10}\left(1+\frac{\Delta p}{p_i}\right)$
40						
60						
80	0	ORIGINAL GROUND SURFACE ($\gamma_{tot}=105$) C+D WASTE	DESIGN WATER LEVEL	0	4600	N/A
100		$\gamma_{tot} = 76$ pcf				
	-30		1278	5048	$C_c = 0.009(80-10) = 0.63$	$\Delta H = 120\left(\frac{0.63}{3.0}\right)\log_{10}\left(1+\frac{(5048-1278)}{1278}\right) = 15.0''$ SAY 15"
120	-40	CH $\gamma_{tot} = 102$ pcf LL=80 $e_0 \sim 2.0$	1704	5474		
		SP-SM $\gamma_{tot} = 110$ pcf $e_0 \sim 0.70$			$C_c = 0.05$ (per BKH, p. 130)	$\Delta H = 300\left(\frac{0.05}{1.70}\right)\log_{10}\left(1+\frac{5474-1704}{1704}\right) = 4.5''$ SAY 5"
140	-65		2894	6664		
		SP-SM $\gamma_{tot} = 115$ pcf $e_0 \sim 0.60$			$C_c = 0.02$ (per BKH, p. 130)	$\Delta H = 420\left(\frac{0.02}{1.60}\right)\log_{10}\left(1+\frac{6664-2894}{2894}\right) = 1.5''$ SAY 2"
160						
		SP				
180	-100		4735	8505		TOTAL 22"

ATTACHMENT 8

Erosion Loss Calculations

SIGMA ENGINEERS & CONSTRUCTORS, INC. ENGINEERING CONSULTANTS	Made By: DLS	Date 2/22/06	Sheet No. 1
	Checked By:	Date	Job No.
	Chef C&D Landfill		
	Erosion Loss Calculation		

OBJECTIVE: Determine the Average Soil Loss in tons per acre per year for the Final Cover Design at Chef C&D Landfill.

METHODOLOGY: Use the USDA Universal Soil Loss Equation

$$A = RKLSCP$$

where A = Average Annual Soil Loss (tons/acre)

R = Rainfall : Runoff Erosivity

K = Soil Erodibility Factor (tons/acre)

LS = Slope Length Factor

C = Cover Management Factor

P = Practice Factor

STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/10/06

DATA

R = 575 (obtained from figure 1)

K = 0.32 (tons/acre) (Allemands, mucky clay)(Fig. 2)

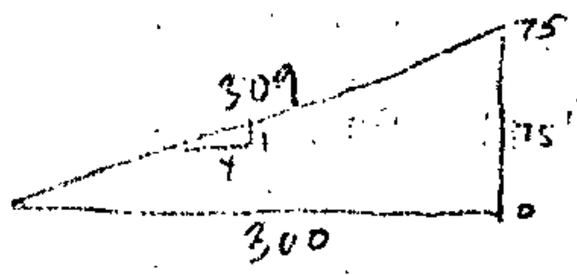
C = 0.003 (for Grass, Figure 3)

P = 1.0 (conservative, No Support Practice)

Corresponding Eqn. = A = (575)(0.32)(0.003)(1.0)(LS)

A = 0.552

Maximum Slope Length = 309' (94m)

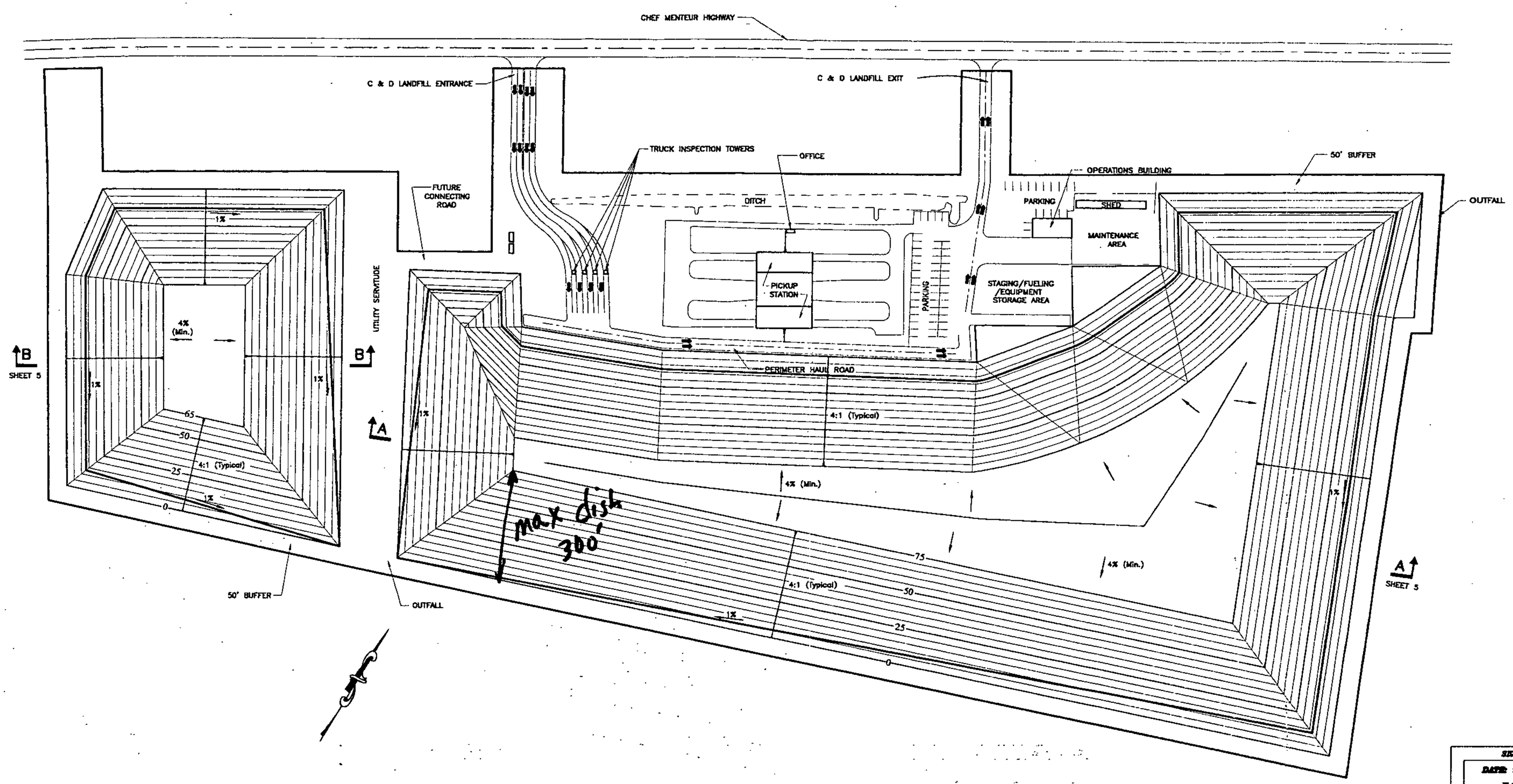


Slope = 25% (4:1)

LS (based on Max Slope Length and Slope) = 10.2 (Figure 4)

Soil Loss → A = (0.552)(10.2) = 5.63 tons/acre

This is AT a small portion of the Side Slopes. Water Diversion Berms will be located on the Cap to Lower Slope Length



SIGMA ENGINEERS & CONSTRUCTORS

DATE: 1/06

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GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION	BY
	REVISIONS	

SITE FINAL CONTOUR GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT

SIGMA ENGINEERS & CONSTRUCTORS

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

ATTACHMENT 9

Waste Acceptance Guidelines

WASTE ACCEPTANCE GUIDELINES

FOR

CHEF MENTEUR C&D DISPOSAL

NEW ORLEANS, LOUISIANA

March 2006

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4.0 Incoming Waste Procedures 2

5.0 Waste Segregation and Removal Procedures 3

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1.0 INTRODUCTION

The purpose of this document is to present the Waste Acceptance and Handling Guidelines for the Chef Menteur C&D Disposal Facility that have been developed in accordance with the Louisiana Administrative Code (LAC) 33:VII. Solid Waste Regulations including Sections 521 and 721. These guidelines specifically provide procedures to determine the acceptability of a waste according to facility operating authorization conditions and state and federal regulations. This program sets forth procedures to monitor incoming loads, specifies which records must be maintained on waste disposed of at the site, and includes a central control and recordkeeping system for tabulation of information obtained from these procedures.

2.0 TYPES OF WASTE

Chef Menteur C&D Disposal can accept all construction/demolition debris, woodwastes and yard trash as defined in the Louisiana Solid Waste Rules and Regulations pursuant to LAC 33:VII.115:

> Construction/Demolition Debris—nonhazardous waste generally considered non water-soluble, including but not limited to metal, concrete, brick, asphalt, roofing materials (shingles, sheet rock, plaster) or lumber from a construction or demolition project, but excluding asbestos-contaminated waste, white goods, furniture, trash or treated lumber. The admixture of construction and demolition debris with more than five percent by volume of paper associated with such debris or any other type of solid waste (excluding woodwaste or yard trash) will cause it to be classified as other than construction/demolition debris.
>
> Woodwaste—yard trash and types of waste typically generated by sawmills, plywood mills, and woodyards associated with the lumber and paper industry, such as wood residue, cutoffs, wood chips, sawdust, wood shavings, bark, wood refuse, wood-fired boiler ash, and plywood or other bonded materials that contain only phenolic-based glues or other glues that are approved specifically by the administrative authority. Treated or painted lumber is not considered woodwaste under this definition.
>
> Yard Trash—Vegetative matter resulting from landscaping, maintenance, or land-clearing operations, including tree and shrubbery leaves and limbs, grass clippings, and flowers.

Additionally, as required, the LDEQ may issue Emergency Orders which could allow this facility to accept other types of wastes for a limited time. If the Chef Menteur C&D Disposal Facility is allowed under an Emergency Order to accept wastes other than those listed above

for disposal, then a list of those additional wastes allowed under the Emergency Order will be posted at the site along with the expiration date of the Order.

3.0 PRE-ACCEPTANCE PROCEDURES

Pre-acceptance procedures determine the acceptability of a waste for disposal at the facility and reasonably ensure that unacceptable wastes are excluded. The pre-acceptance procedure is the process by which a decision to reject or accept a waste is made. The procedure is based on provisions of the facility operating authorization and the current state and federal regulations. Pre-acceptance requirements specify what information a generator must provide about a waste to Chef Menteur C&D Disposal to determine acceptability for disposal.

The following wastes cannot be disposed of at Chef Menteur C&D Disposal per LAC 33:VII.721.C.1.f:

- Hazardous Waste
- Liquid Waste
- Infectious Waste
- Residential Waste
- Industrial Waste
- Commercial Waste
- Friable Asbestos
- Putrescible Waste

4.0 INCOMING WASTE PROCEDURES

The gatehouse, in accordance with LAC 33:VII.721.B.1.a. and b., is equipped with a central control and record keeping system for tabulating information on the waste. The system records the quantity (by cubic yard measurement), sources, and types of incoming waste.

The pre-acceptance, and incoming waste procedures in conjunction with the facility security system allows only limited and controlled access to the disposal area. The controlled and documented entry along with the random inspection of incoming waste loads will reasonably ensure exclusion of prohibited waste. Facility personnel receive training in regulatory compliance which provides a review of applicable state regulations with emphasis on the facility authorization to operate. Certified facility operators receive additional training on regulatory compliance during scheduled meetings conducted by the Board of Certification and Training for Solid Waste Disposal System Operators and LDEQ Solid Waste Division.

Pursuant to LAC 33:VII.521.H.2.a, random inspections are performed for the purpose of hazardous waste and prohibited waste exclusion. The random inspections are conducted near

or adjacent to the work face within the certified disposal area and will be performed at a frequency of no less than 2 per month.

Facility personnel may evaluate solid waste materials for utilization as an alternate cover material for placement as interim cover. All materials selected must meet the requirements for interim cover as specified by LAC 33:VII.721.A.2. Specifically, cover materials must minimize vector-breeding areas and animal attraction; control leachate generation; reduce fire-hazard potential; minimize blowing paper and litter; reduce noxious odors, and provide an aesthetic appearance to the landfill operation.

If the waste delivery process indicates the waste is approved and all required information is documented the truck will be directed to proceed to the appropriate disposal area. The waste will be unloaded and commingled with other wastes received at the site.

5.0 WASTE SEGREGATION AND REMOVAL

Chef Menteur C&D Disposal will store wastes that are not acceptable for disposal at the site in closed containers that prevent vector and odor problems. These wastes will be removed from the facility at least every seven days. A log will be maintained of the dates and volumes of waste removed from the facility in accordance with LAC 33:VII.721.C.4.

6.0 SUMMARY

This Quality Assurance and Quality Control Program allows for the safe and efficient use of Chef Menteur C&D Disposal as a secure disposal site for construction and demolition debris, woodwastes and yard wastes.

ATTACHMENT 11

Training Program

TRAINING PROGRAM

FOR

CHEF MENTEUR C&D DISPOSAL FACILITY

ORLEANS PARISH, LOUISIANA

March 2006

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1.0 INTRODUCTION

The Training Program for the Chef Menteur C&D Disposal Site has been developed to provide employees with the knowledge necessary to insure safe and efficient operation of the facility. The plan also demonstrates to employees methods for rapid and effective responses to emergency situations.

2.0 TRAINING PROGRAM

In addition to supervised on-the-job training, all personnel handling solid waste at the Disposal Site will complete a program of training which will teach them to perform their duties in accordance with environmental regulations. The training program includes:

- Personnel Protection and Safety
- Health and Environmental Effects
- Regulatory Compliance
- Facility Operation and Maintenance
- Contingency and Emergency Response Procedures

2.1 Scope of Training

2.1.1 Personnel Protection and Safety (Monthly Safety Meeting)

In this part of the Training Program, the facility's safety plan and procedures are reviewed. Employees are instructed in the use of protective clothing (e.g., hard hats, gloves, safety glasses) and safety equipment. The training is hands-on and emphasizes the selection, proper use, inspection and routine maintenance of all safety equipment and the limitations of this equipment. Personal hygiene and basic safety rules are emphasized.

2.1.2 Health and Environmental Effects (Employee Right-To-Know)

Training in health and environmental effects enables the employee to recognize potential health hazards, proper reporting and personal protection steps and to understand any potential hazards associated with material handled at the facility.

Training is broad-based and covers proper handling of wastes, vector monitoring and control, exposure to certain materials received at the facility,

effects of groundwater contamination and applicable health and environmental standards.

2.1.3 Regulatory Compliance (Emergency Disaster Cleanup Site Request document)

Training in regulatory compliance provides a review of applicable state and local regulations with emphasis on application of the facility to the solid waste regulations. Certified facility operators receive additional training on regulatory compliance at regularly scheduled meetings conducted by the Board of Certification and Training for Solid Waste Disposal System Operators and the LDEQ Solid Waste Division.

2.1.4 Facility Operation and Maintenance

Operations and maintenance training includes an overview of all elements in the operation of the facility and detailed instruction in those elements related only to the employee's specific job function.

Operation and maintenance training is composed of the following elements:

- Detailed facility description and individual unit operations;
- Waste acceptance procedures, as described in the Emergency Disaster Cleanup Site Request Document
- Landfill operation, access road maintenance, waste unloading, spreading and compacting, daily, interim and final covering, wet weather operations and general earth-moving activities;
- Maintenance, including inspection schedules, procedures, supplies and tools, mechanical systems, electrical systems, monitoring systems, controls, and maintenance documentation;
- Equipment safety with particular emphasis on lock-out procedures, confined space entry, and safe emergency response to equipment failures;
- Vehicular and mobile equipment operations, including operating, inspection, maintenance and safety procedures.

2.1.5 Contingency and Emergency Response Procedures

Each employee is familiarized with the facility Contingency and Emergency Response Procedures within the first month of employment. Training in emergency procedures is provided by the facility's Emergency Coordinator or his designee, and includes:

- Description of emergency situations which might occur;
- Duties of the Emergency Coordinator and others;
- Emergency communications;
- Evacuation procedures;
- Location of emergency equipment;
- Reporting mechanism.

A facility walk-through is given to each new employee to point out areas of potential risk, locations of emergency equipment, and any alternate routes which may be used in an evacuation. The Emergency Coordinator or his designee will document that each new employee has demonstrated his knowledge of the communication system, evacuation procedures, and location of emergency equipment.

At least one employee per shift will be trained in first aid and at least one full-time employee will be trained in cardiopulmonary resuscitation (CPR). This training is conducted by the American Red Cross, American Heart Association, YMCA, local fire department and/or first aid representatives.

All operations personnel (non-clerical employees) are also trained in fire fighting. This training is conducted by the Emergency Coordinator or his designee, and includes use of cover soils to smother landfill fires, as well as use of portable extinguishers and the water truck.

2.2 Continuing Training

An employee's training does not end with his initial orientation. In fact, as the employee continues to work at the facility, periodic "refresher" training is required and provided, as discussed herein.

Continuing training is designed to maintain proficiency in job skills, increase safety and quality consciousness, and teach new skills. Such training consists of regularly scheduled safety meetings. In addition to equipment safety, these meetings will address fire fighting practices, emergency response, and other new sills, as required.

2.3 Documentation of Training

All training records are maintained on site in the General Manager's office or designated location. The records contain a written description of the content of each training session, identify attendees and instructor(s), and include dates and signatures of instructors and attendees documenting the training that was completed.

ATTACHMENT 13

Closure and Post-Closure Plan
And Cost Estimates

CLOSURE AND POST CLOSURE PLAN

CHEF MENTEUR C&D DISPOSAL

NEW ORLEANS, LOUISIANA

March 2006

CLOSURE AND POST-CLOSURE PLAN
CHEF MENTEUR C&D DISPOSAL
NEW ORLEANS, LOUISIANA

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- 2.3 Estimated Closure Cost 2
- 2.4 Facility Recordkeeping Requirements 2

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Appendix A Documentation for Updating Parish Mortgage and Conveyance Records

CLOSURE PLAN
CHEF MENTEUR C&D DISPOSAL
NEW ORLEANS, LOUISIANA

1.0 INTRODUCTION

This Closure and Post-Closure Plan has been developed for the Chef Menteur C&D Disposal located in New Orleans, Louisiana. This plan addresses the requirements of the Louisiana Solid Waste Rules and Regulations (LSWR, LAC 33:VII.521.J and K) for closure and post-closure care of a Construction and Demolition Debris and Woodwaste landfill. The landfill receives only construction debris and woodwastes as specified in the facility operational authorization.

The landfill site is located in Section 2, Township 11S, Range 13E, Orleans Parish, Louisiana, as shown on the Area/Vicinity Map presented as Figure 1. The proposed landfill occupies approximately 100 acres, which is divided into Cells 1 and 2. The proposed landfill is shown on the Site Plan presented as Figure 2.

This plan includes a description of the steps that will be undertaken to close each filled disposal area, a description of the final cover system and the methods used to install the cover.

2.0 CLOSURE REQUIREMENTS

2.1 Notification Requirements

The administrative authority will be notified in writing at least 90 days before closure of intent to close, seal, or abandon any individual disposal areas within the landfill. The notification will include the date of planned closure, changes requested in the approved closure plan (if any), closure schedule, and estimated closure cost.

2.2 Maximum Waste Inventory

The maximum waste inventory for the existing landfill area (Cells 1 and 2) is estimated to be approximately 7.2 million cubic yards (in place). These estimates do not include soil cover added to the waste. The final contours for the landfill are shown on Figure 3, Final Contour Plan.

2.3 Estimated Closure Costs

The estimated cost of closure of the facility, based on the cost of hiring a third party to close the facility at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive, is presented on Table 1. These costs are based on closure of a fifteen-acre disposal area, which is the largest area projected to require closure at one time. The estimated cost may be revised at a later date due to new information on which to base an estimate. Revised estimates will be submitted in the form of a closure plan modification.

2.4 Facility Recordkeeping Requirements

A copy of the approved closure plan will be kept on file at the landfill site until the owner is released from the requirements for closure and post-closure care. Evidence of a financial assurance mechanism for closure and post-closure care costs will be included in the final facility operational authorization request to be submitted to the LDEQ.

3.0 CLOSURE COVER DESIGN AND INSTALLATION

The final closure cover is designed to ensure that the landfill modules are closed in a manner that minimizes the need for further maintenance and controls, including the minimization of infiltration and erosion. The closure requirements discussed in this Section pertain to sections of the landfill that have not previously been closed. Closure of filled disposal areas will include grading of the waste and installation of a closure cover which meets the requirements of LAC 33:VII.721.D.3.a.

3.1 Preclosure Requirements

A major site development objective is to manage the filling activities such that finished grades are achieved on a progressive basis. In this way, placement of final cover takes place throughout the life of the site. Therefore, the largest area of the landfill unit requiring final cover for the currently-authorized landfill footprint is approximately fifteen acres.

Closure of the fifteen-acre area will be initiated no later than 30 days after and completed no later than 90 days after final grades are achieved in the disposal area or after the date of known final receipt of solid waste in the module, whichever comes first. This schedule may be extended by the administrative authority, if necessary, due to inclement weather or other circumstances, up to a maximum of 60 days for initiation and 180 days for completion.

Prior to closure, standing water will be solidified or removed. An insect and rodent inspection will be performed and documented before installation of final cover and, if necessary, extermination measures will be provided. Final machine compacting and grading will be completed prior to initiating final cover placement. The runoff diversion system will be maintained until the final cover system is installed, and will be modified, if necessary, to prevent overflow of surface water run-off from the landfill.

3.2 Cover System Design and Installation

Final cover will be installed directly over the intermediate cover that will serve as a grading layer to provide a stable base for subsequent layers. The cover system to be installed is a combination of composite cover (upper slopes) and soil cover (lower slopes) described as follows (from bottom to top):

- a minimum 2-foot silty clay cover or other cover that would provide a more practical answer and satisfy the purposes of minimizing fire hazards, odors, vector food and harborage and infiltration of precipitation, as well as discouraging scavenging and limiting erosion, may be submitted for approval by the administrative authority;
- a nominal six thick soil layer installed directly over the clay. This six inch layer shall consist of soil capable of sustaining vegetative growth.

A detail of this cover system is presented on Figure 4.

After a closure inspection and approval, the final cover of each closed landfill disposal area will be fertilized and planted with native grass seed or other shallow-rooted vegetation to promote good growth and easy care, to minimize soil erosion, and to provide a more natural appearance. Closure will be considered complete after the final cover has been inspected and approved, and the vegetative cover has been placed. Final closure of the site will be achieved when all cells have been filled and closed.

4.0 CLOSURE DOCUMENTATION

4.1 Closure Certification

The closure activities will be monitored by a professional engineer to ensure that closure has proceeded according to the approved closure plan. The professional engineer will submit final written certification to the department that the final cover was completed in accordance with the approved closure plan. The certification will be submitted within 60 days after completion of the final cover over each landfill area.

4.2 Documentation for Parish Mortgage and Conveyance Records

Following placement of final cover over the entire landfill, WML will update the Orleans Parish mortgage and conveyance records by entering the specific location of the facility and specifying that the property was used for the disposal of solid waste. The document will identify the name and address of a person with knowledge of the contents of the facility. A copy of the form typically used for this purpose is presented in Appendix A. A certified copy of the document will be obtained from the clerk of court and filed with the LDEQ Solid Waste Division.

5.0 POST-CLOSURE CARE REQUIREMENTS

The post-closure period will be 3 years following written confirmation by the department that the site has been closed in accordance with the approved closure plan. During the post-closure period, the closure cover will be maintained and monitoring activities will be performed as described below.

5.1 Site Maintenance Activities and Access Control

The integrity and effectiveness of the final cover will be maintained, including making repairs as necessary to correct the effects of settlement, subsidence, and erosion, and preventing run-off and run-on from eroding or otherwise damaging the cover. Annual reports documenting the integrity of the final cover will be submitted to the LDEQ Solid Waste Division.

Access to the site after closure will be controlled through maintenance of existing fencing and signs, and all access gates will be locked to discourage entry.

5.2 Post-Closure Cost Estimate

An estimate of the cost of performing post-closure activities, based on the estimated cost of hiring a third party to conduct these activities in accordance with this closure plan, is presented on Table 4. This cost estimate may be revised at a later date due to new information on which to base an estimate. A revised estimate will be submitted in the form of a closure plan modification.

5.3 Site Management and Use

The name, address, and telephone number of the person or office to contact about the facility during the post-closure period will be provided upon notice of closure. At this time, post-closure use of the landfill facility is planned to be recreational. The final landfill cover will not be disturbed without prior approval from the administrative authority.

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TABLE 1 ESTIMATED CLOSURE COSTS FOR A FIFTEEN-ACRE LANDFILL DISPOSAL AREA

TABLE 2 CLOSURE SCHEDULE FOR A FIFTEEN-ACRE LANDFILL DISPOSAL AREA

TABLE 3 ESTIMATED POST CLOSURE COSTS

TABLE 1

ESTIMATED CLOSURE COSTS FOR A FIFTEEN-ACRE LANDFILL DISPOSAL AREA CHEF MENTEUR C&D DISPOSAL

Closure Activity	Cost ($)
1. Perform grading of waste ($1,200/acre)	18,000.
2. Supply and placement of 2-foot thick cohesive soil layer ($8.50 yd³)	411,400.
4. Supply and placement of vegetative soil cover ($6.00 yd³)	72,600.
5. Supply and application of seed ($1,800/acre)	27,000.
6. Closure certification (includes CQA during construction)	30,000.
TOTAL ESTIMATED CLOSURE COST	**$559,000.**

TABLE 2

CLOSURE SCHEDULE FOR A FIFTEEN-ACRE LANDFILL DISPOSAL AREA
CHEF MENTEUR C&D DISPOSAL

Closure Activity/Task	Number of Days To Complete
Notify Administration Authority of intent to perform closure	-
Within 30 days after final receipt of waste in a module, start closure	0
Perform grading of waste	5
Install 2-feet thick clay cover	30
Cap with 0.5 feet of vegetative soil cover; grade to final contours	20
Seed final cover to prevent erosion	10
TOTAL TIME TO COMPLETE CLOSURE	**65**

Note: 1) Engineering certification to be submitted within 60 days after completion of the final cover.

2) The above schedule may extend beyond 90 days due to weather conditions, but will not extend beyond 180 days.

TABLE 3

ESTIMATED POST-CLOSURE COSTS
CHEF MENTEUR C&D DISPOSAL

Post-Closure Activity	Quantity	Cost ($)
Site Monitoring Activities		
X Annual Inspection, @$3,500/yr	3 years	$10,500.
Post-Closure Care		
X Maintenance of cap, mow 2 times/yr. @ $2,000/yr.	3 years	6,000.
X Maintenance of cap, erosion and settlement repair @ $5,000/yr.	3 years	15,000.
X Maintenance of facility, fencing, security, drainage system @ 50,000/yr.	3 years	150,000.
TOTAL ESTIMATED POST-CLOSURE COST		**$181,500.**

FIGURES

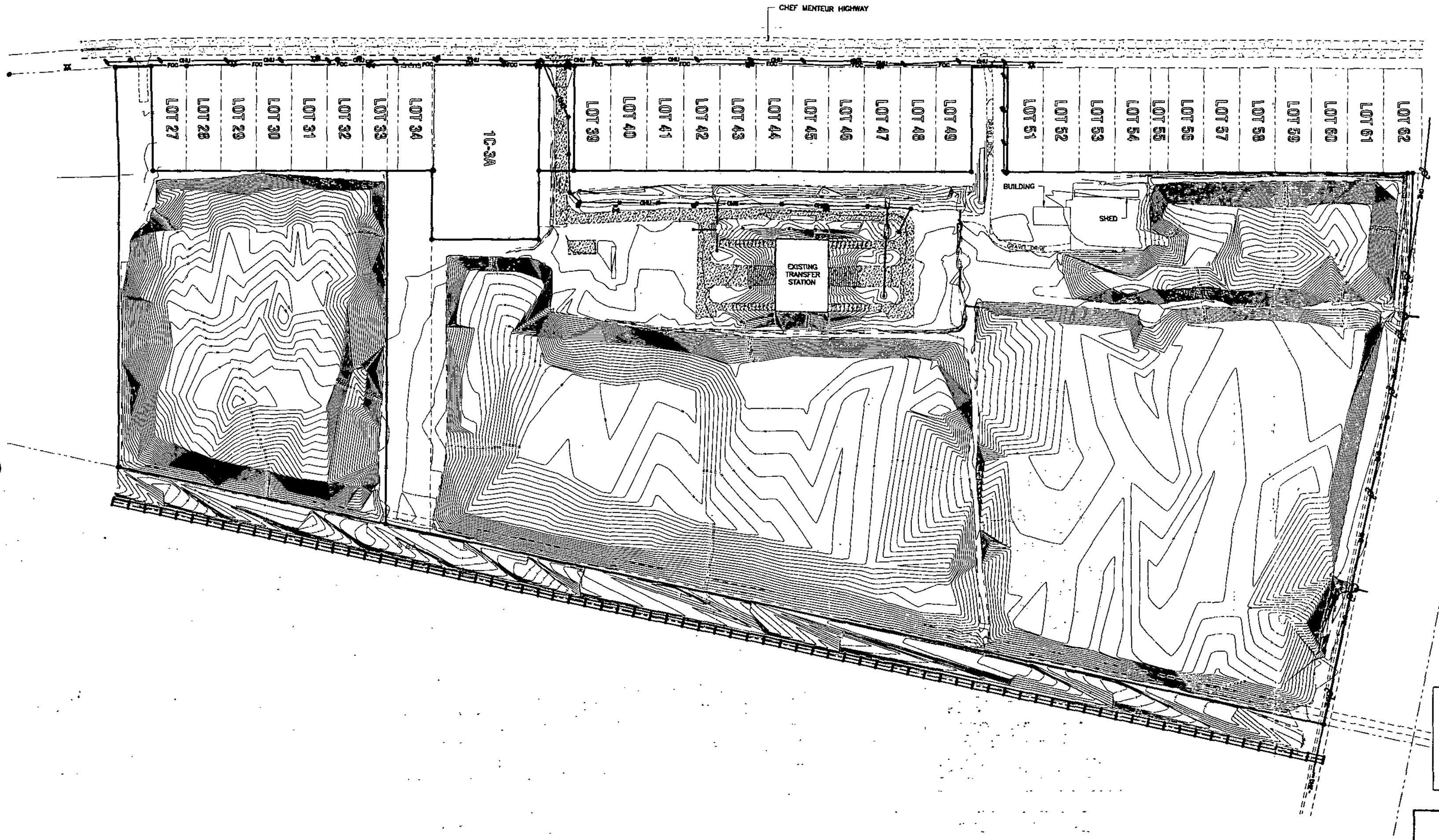
Figure 1 Area Vicinity Map

Figure 2 Existing Site Plan

Figure 3 Final Contour Plan

Figure 4 Final Cover Detail

SHEET 2



STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

DATE	DESCRIPTION REVISIONS	BY

EXISTING SITE PLAN
CHEF MENTEUR
C & D LANDFILL

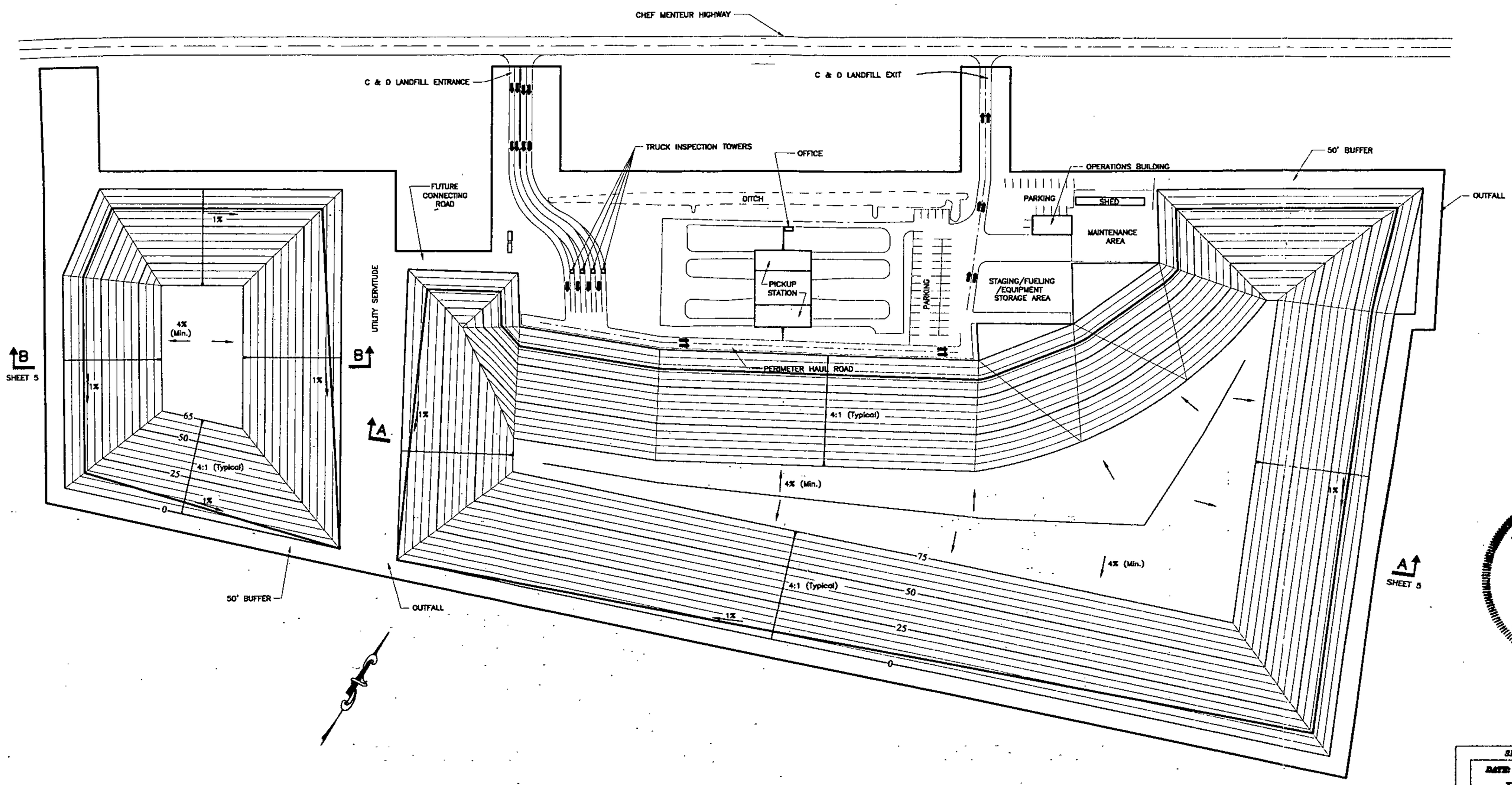
ORLEANS PARISH — JANUARY, 2006

WM WASTE MANAGEMENT

SIGMA ENGINEERS & CONSTRUCTORS
JOB NO. [illegible]

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

SHEET 4



STATE OF LOUISIANA
DALE L. STEIB
REG. No. 28229
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING
3/13/06

SIGMA ENGINEERS & CONSTRUCTORS
DATE: 1/06

ISSUED FOR PERMITTING PURPOSES ONLY

GRAPHIC SCALE

140 0 70 140 280 560

(IN FEET)
1 inch = 140 ft.
UNUSUAL SCALE FOR READABILITY

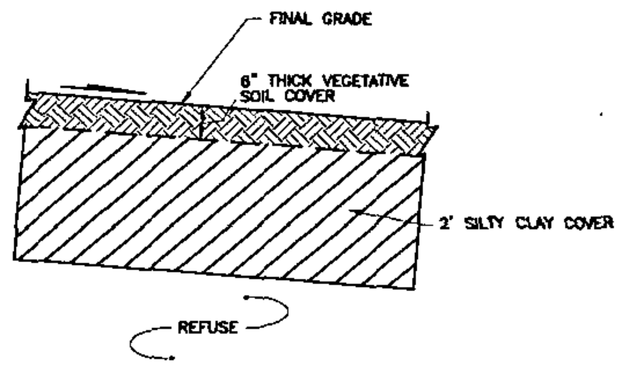
DATE	DESCRIPTION REVISIONS	BY

SITE FINAL CONTOUR GRADING PLAN
CHEF MENTEUR
C & D LANDFILL

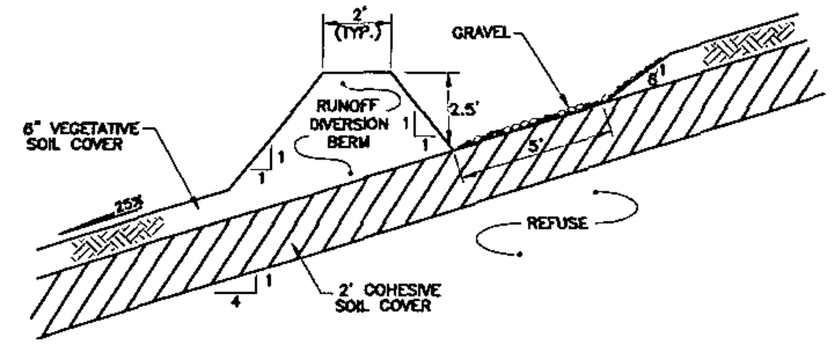
ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

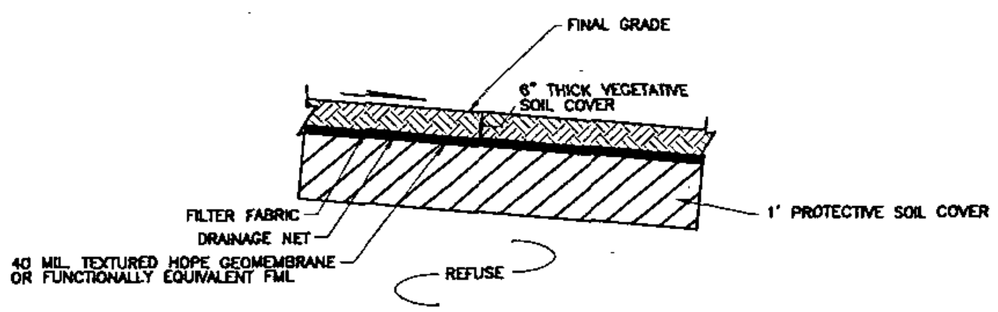
DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		



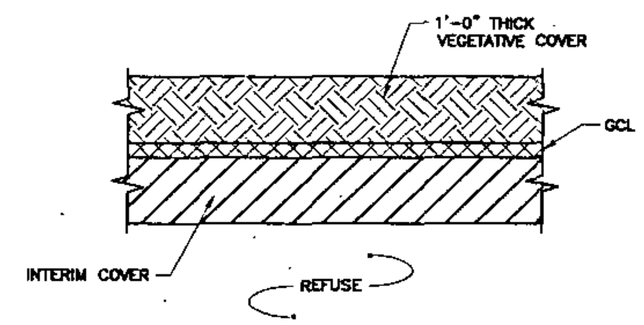
FINAL COVER SECTION (4% & 25% SLOPE) 1
NTS



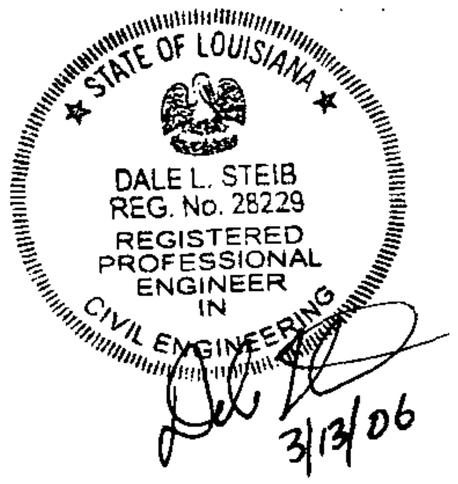
CROSS-SECTION THOUGH PROTECTIVE COVER DIVERSION BERM 2
NTS



ALTERNATE FINAL COVER SECTION (4% SLOPE) 3
NTS



ALTERNATE FINAL COVER SECTION (4% & 25% SLOPE) 4
NTS



SIGMA ENGINEERS & CONSTRUCTORS
DATE 1/06
ISSUED FOR PERMITTING PURPOSES ONLY

MISCELLANEOUS DETAILS
CHEF MENTEUR
C & D LANDFILL

ORLEANS PARISH — JANUARY, 2006

WASTE MANAGEMENT — SIGMA ENGINEERS & CONSTRUCTORS

DATE	DESCRIPTION REVISIONS	BY

DESIGNED	DRAWN	CHECKED	APPROVED
DLS	DLS		

APPENDIX A

DOCUMENTATION FOR PARISH MORTGAGE
AND
CONVEYANCE RECORDS

**DOCUMENT TO BE FILED IN THE PARISH RECORDS
UPON FINAL CLOSURE
OF A SOLID WASTE DISPOSAL FACILITY**

(Name of facility) hereby notifies the public that the following described property was used for the disposal of solid waste. This site was closed on (date facility was closed) in accordance with the Louisiana Administrative Code, Title 33, Part VII. Inquiries regarding the contents of (the facility) may be directed to (name of person with knowledge of the contents of the facility) at (address of person with knowledge of the content of the facility).

Property Description
(Provide the specific description of the location of the facility)

_____
Signature of Person Filing Parish Record

_____
Typed Name and Title of Person Filing
Parish Record

_____
Date

(A true copy of the document certified by the parish clerk of court must be sent to the Solid Waste Division, Post Office Box 82178, Baton Rouge, Louisiana 70884-2178.)

ATTACHMENT 15

Regulatory Considerations

Information Relevant to Requirements
Of LAC 33:I.1701

Information Relevant to Requirements of LAC: 33:1.1701

1. LAC 33:1.1701.C: Waste Management of Louisiana, LLC provides the following list of states and environmental permits identical to or of a similar nature to, the request being made, including the same information for Waste Management of Louisiana Holdings One, Inc., a Delaware corporation that owns a controlling interest (more than 50%) in Waste Management of Louisiana, LLC. There are no other individuals, partnerships, corporations, or other entities who participate in the environmental management of the Chef Menteur C&D Disposal site.

PERMIT NO.	FACILITY / LOCATION	PERMIT HOLDER
P-0080 R1	Woodside Landfill and Recycling Center, LOUISIANA 29375 Woodside Drive Walker, Louisiana 70785	Waste Management of Louisiana, LLC
P-0046-R1	Magnolia Landfill, LOUISIANA 1000 Russell Sage Road Monroe, LA 71213-3467	Waste Management of Louisiana, LLC

2. LAC 33:1.1701.D.2: Waste Management of Louisiana, LLC certifies that it owes no outstanding fees or final penalties to the Department.

3. LAC 33:1.1701.D.1 Waste Management of Louisiana, LLC is a Delaware limited liability company authorized to do business in the State of Louisiana and therefore is required to register with the Secretary of State. Attached to this Attachment for Addendum to Permit Application per LAC 33:1.1701 is the Certificate of Authority issued by the Louisiana Secretary of State to Waste Management of Louisiana, LLC.

Regulatory Response to
LAC 33:VII.523.E

"IT Decision" Questions

INTRODUCTION

Waste Management of Louisiana, LLC (WML), doing business as Chef Menteur C&D Disposal provides the following responses to the "IT Questions" in the format suggested by the Department. It should be noted that information that addresses the questions below is also included throughout the request for authorization.

I. Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

The Chef Menteur C&D Disposal Facility has been designed to avoid the potential and real adverse environmental effects to the maximum extent possible. This facility is proposed as a temporary C and D disposal facility under the Emergency Declaration associated with Hurricane Katrina to accept construction and demolition debris and wood wastes, and "Hurricane Generated Materials Allowed at a Permitted Construction and Demolition Debris (C&D) Landfill or Department Authorized Site" per Appendix D of the Fourth Amended Declaration of Emergency and Administrative Order, AI130534, dated January 13, 2006 (attached). The available capacity of the facility for disposal is 6,500,000 cubic yards. The majority of the wastes received at the facility will be directly landfilled immediately.

Waste received at the site will come from direct and indirect effects of Hurricanes Katrina and Rita. The primary source of waste will be Orleans, St. Bernard and St. Tammany Parishes. These wastes will be disposed of in prepared landfill cells. After each cell reaches its design elevation, it will be capped in accordance with the approved landfill closure plan. The facility will only accept construction and demolition debris and wood wastes in accordance with the Waste Acceptance Guidelines which reflect the requirements of the DEQ Emergency Order.

Prior to the placement of waste within a cell or holding area, berms are constructed for run-on/run-off control. If a potential hurricane or significant storm event is within 24 hours of reaching the facility, all wastes will receive at least twelve (12 inches) of soil cover to prevent contamination of any stormwater that could exit the containment areas. Thus, the likelihood of a release is very low.

The following steps will be taken to avoid any potential or real adverse effects on the environment due to the presence of the facility.

1. A barrier is present around the active site, to deter unauthorized entrance to the site.

2. A perimeter levee is present around the active landfill, which will be extended as additional area is utilized to prevent storm water entry into the active area or a release of untreated water from the active area.

3. The deposited waste will be covered to prevent odors, harborage of rodents, insect disease vectors or other events from becoming a problem.

4. The active area of the landfill will be minimized by applying interim and final cover over the landfill as soon as areas reach final elevations. The interim and final cover will be graded and vegetated to minimize erosion.

5. Waste Management of Louisiana (WML), the owner and operator of Chef Menteur C&D Disposal Facility, has demonstrated expertise, competence and experience in the operation of modern landfills thereby eliminating any potential effect that may result from inexperienced or untrained operators.

6. Complete records of all material and vehicles entering the landfill will be maintained in accordance with regulations and for security purposes.

7. No scavenging or burning of waste, no illegal dumping, and no hazardous wastes or prohibited wastes will be allowed at the landfill.

8. The landfill has been designed to ensure structural stability of the mass as demonstrated by the engineering design calculations presented in this authorization request.

9. Only construction and demolition debris and wood waste will be accepted by the facility. Waste inspection procedures will be in place to ensure that other wastes are not accepted.

A 50-foot buffer zone will be provided along the property line between the facility and adjacent properties. This buffer zone will be vegetated to provide effective visual screening.

Qualified personnel assigned to operate the facility will participate in training plans, waste acceptance guideline training programs and safety programs. Each new employee will be trained in the general orientation and operation of the facility. Training programs related to the specific duties of each job function have been specifically tailored to that position. No employee will be permitted to work unsupervised until the employee has successfully completed all elements of the training program. This introductory training will be completed within six months of the new employee's entry into a specific assignment. In addition, every employee will participate in training updates to maintain proficiency, learn new techniques and procedures, and reinforce safety and compliance consciousness. The training program has been designed to familiarize personnel with emergency procedures, emergency equipment, and emergency systems including the use of communication and alarm systems; procedures for using, inspecting, repairing and replacing facility emergency equipment; shut-down of operations; and response to fires, explosion and other emergency events. The training program has been provided to the Department.

Through careful implementation of these activities, the potential and real adverse environmental effects of the proposed facility will be avoided to the maximum extent possible.

II. Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Currently a cost benefit analysis clearly demonstrates that the social and economic benefit of operating the Chef Menteur C&D Disposal Facility outweighs the potential environmental impact costs. Authorization of the site as a C and D landfill was initiated by others in the 1990's with the intention of serving the construction industry in east Orleans Parish. Since that time other sites have been utilized. However the devastation wrought by Hurricanes Katrina and Rita and the proximity of the impacted areas to the Chef Menteur C&D Disposal Facility property weigh the cost benefit analysis heavily in favor of the social and economic benefits of this facility as a temporary site under the Emergency Declaration. Given the large number of structures to be demolished in the immediate vicinity, having a facility available to dispose of the debris in an environmentally sound manner will allow debris to be cleared more quickly, reduce the potential for deposition of materials on roadways throughout the city during hauling to distant disposal sites, and reduce the amount of vehicle emissions generated through the process. During discussions of these factors with the City of New Orleans administration, it was concluded that, considering present urgent needs for this type of facility, operation of the facility at this location is consistent with the best interests of the City. As the facility is in an industrial area and near areas that have suffered major impacts from Hurricanes Katrina and Rita, the development of this facility should not unnecessarily reduce property values in the immediate vicinity.

The Chef Menteur C&D Disposal Facility will hire as many qualified individuals from the current City residents as possible for the operation. Currently, the facility anticipates between 8 and 10 new full and part-time jobs will be filled by local residents. Additionally, due to the economic hardship caused by the enormous cost of debris removal, revenues to the City of New Orleans will be provided in the form of royalty payments that are based on disposal volumes

Chef Menteur C&D Disposal Facility does not foresee any increase in public costs for police, fire protection, medical facilities, or emergency response equipment and facilities. The facility will implement a contingency plan that sets forth procedures to be followed for reporting emergencies; coordinating notification and response actions; and responding to specific emergencies. The site is located on a major US highway and near the interstate allowing easy access to the site.

The anticipated date for final closure is 2009 if the anticipated volumes are achieved. However, as each area reaches the final design elevation, the final closure cover will be installed. As each area is closed, a qualified independent Professional Engineer registered in Louisiana will certify closure in accordance with the authorization and approved closure plan.

The proposed facility is currently leased by Waste Management of Louisiana, LLC (WML) and will be operated by WML, a wholly owned subsidiary of Waste Management Holdings, L.L.C.. WML also has a purchase agreement executed by the property owner. WML is responsible for closure of the site in accordance with the authorization issued and the applicable regulations in effect at the time of closure. WML has issued the necessary financial instruments to ensure that the facility will be properly closed and that the required post-closure maintenance and monitoring will be conducted.

A record in the Parish mortgage and conveyance records will be filed describing the specific location of the facility and specifying that the property was used for the disposal of solid waste. The document shall identify the name of the person with knowledge of the contents of the facility, as well as providing the quantities in place. A true copy of the document, filed and certified by the parish clerk of court, will be sent to the Office of Environmental Compliance.

These actions demonstrate that the social and economic benefits to the realized from this facility outweigh the potential environmental impacts.

III. Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing nonenvironmental benefits?

The utilization of alternative methods of disposal for C&D wastes and hurricane generated debris has been studied. Although alternate technologies are available, no other technology is economically viable while providing the maximum environmental benefits. Furthermore, all available alternatives generate a residual that must be land-disposed.

Incineration, resource recovery, and composting alternatives are described herein. Ocean dumping is not considered an alternative due to transportation and access problems as well as a significant negative environmental impact.

Incineration

While air curtain burner type of incinerators can be used for clean wood wastes and yard wastes, disposal of residential-types of storm debris such as allowed in this facility under LDEQ Emergency Orders (issued due to hurricane impacts) would not feasible. Operations of these incinerators are regulated under US EPA New Source Performance Standard which requires the incinerators to burn only yard wastes and clean wood wastes in order to maintain an exemption from the complete monitoring, recordkeeping and reporting requirements of the regulation. This would eliminate disposal of much of the hurricane generated debris, greatly reducing the utility and function of the site.

Resource Recovery

Resource recovery is not considered to be feasible in this area at this time. Given the volume of hurricane generated debris to be disposed of in a timely manner, sorting and

recovery of various recyclable materials is not planned. After the bulk of the hurricane generated debris has been disposed of, materials recovery could be implemented upon determination of how best to implement it.

Composting

Given the mixed nature of the wastes anticipated for Chef Menteur C&D Disposal Facility, composting is not feasible. While receipt of some yard and wood wastes is anticipated, the remainder of the hurricane generated debris being received at Chef Menteur C&D Disposal Facility would require landfilling even if composting were performed.

Landfilling

Development of the landfill as proposed is the only option which is currently reliable, environmentally safe, and economically feasible for meeting the hurricane generated debris disposal needs of the area. The Chef Menteur C&D Disposal Facility fits into the overall waste management need by providing cost effective available disposal for hurricane generated debris at a time when such capacity is urgently needed by Orleans Parish and surrounding parishes.

Record keeping will be routinely and properly maintained to effectively manage the operation and to prepare the necessary reports in accordance with the administrative requirements of the State.

The waste delivery and recording system, in conjunction with the facility security system, allows only limited and controlled access to the disposal area. The controlled and documented entry along with the random inspection of incoming waste loads will reasonably ensure exclusion of prohibited wastes. Facility personnel receive training in regulatory compliance, which provides a review of applicable state regulations with emphasis on the facility operating authorization. Certified facility operators receive additional training on regulatory compliance during scheduled meetings conducted by the Board of Certification and Training for Solid Waste Disposal System Operators and the LDEQ Solid Waste Division.

Random inspections will be conducted at the work face, and personnel will make the required entry in the site's record keeping system indicating the required information which may include generator, waste name, vehicle number, time, date, and volume.

Collection vehicles are not allowed to proceed into the landfill until authorized. Trucks will be logged in and directed to the unloading area. Vehicles entering the facility are measured prior to entering the disposal area. Upon completion of acceptance procedures described in the Waste Acceptance Plan, vehicles would be directed to the active disposal area. Properly placed signs will instruct drivers as to speed limitations, site precautions, movement of traffic and directions to the working face of the active landfill cell to facilitate uniform traffic flow.

Filling will proceed using sections approximately 20-foot high by 200-foot wide. Filling generally begins on the high end and proceeds toward the opposite end of the cell, which

is lower in elevation. Generally, development of the landfill will be done by filling each area to the approximate final grade before filling within the next area. The unloading area would be maintained to facilitate side-by-side unloading to minimize delay due to equipment operations. As the design height is attained, interim cover and interim compacted cover would be placed over the appropriate sections of the disposal area.

A major site development objective is to manage the filling activities such that the finished grades are achieved on a progressive basis, then final-covered and vegetated as soon as practical. In this way, closure would take place throughout the life of the site and no area which had been brought up to final grade would remain without the required final cover for more than a few months. The largest area of the landfill unit requiring final cover for the currently designed or modified landfill footprint would be approximately fifteen acres. Final cover installation would be initiated and completed for the final fifteen acre area within 30 days to 90 days after final grades are reached, following final receipt of wastes, unless additional delays are caused by inclement weather.

Within a few months after final cover is applied, the area will be seeded. Areas which have been covered, closed, and are growing vegetation will be maintained in an aesthetically pleasing manner. Periodically, areas which have received final cover and have been vegetated will be inspected for spongy spots, erosion, vegetative stress, etc. These areas would be repaired as necessary.

The final cover placed on the landfill will be maintained for three years after closure. Maintenance activities will include inspection of the vegetative cover, as needed, and inspections of the cover for evidence of burrowing, erosion, settlement, subsidence, or other events, as specified in LAC 33:VII.711.F.3.a. If any problems with the cover are noted, they will be subsequently repaired to maintain the integrity of the cover.

These steps offer protection to the environment throughout operation of the proposed facility while allowing realization of non-environmental benefits, thus making this project the best alternative for addressing the City's needs in this geographic area.

IV. Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing nonenvironmental benefits?

Alternate sites exist within the New Orleans metropolitan area, but are located on the opposite (western) side of the city on the opposite site of the Mississippi River in Jefferson Parish. Utilization of these alternate sites would result in increased transportation costs and incremental potential pollution from transport vehicles, and risks to the public from the additional truck miles traveled. Travel to these sites would require transportation of wastes from eastern New Orleans, through the City, across to the West Bank of the Mississippi River, and then to the sites. These additional impacts of using alternate sites demonstrate that utilizing alternative sites offers less protection to the environment and reduces nonenvironmental benefits.

The location of the proposed site is on U.S. Highway 90, near to both I-510 and I-10, and located in heavily flooded eastern New Orleans. Other sites which might be considered may not offer the advantages provided by having a landfill located near those areas where demolition of storm damaged structures will be occurring.

As demonstrated by the correspondence provided with the request the Louisiana Department of Culture, Recreation and Tourism stated that a review of the respective state files indicated there are no known archaeological or historical sites within 1,000 feet of the landfill site area. Furthermore, the Louisiana Department of Wildlife and Fisheries indicated that no rare, threatened, or endangered species or critical habitats are present within the specified 1,000-foot radius of the facility, and stated that no state or federal parks, or scenic streams are located within the subject area.

Existing land use within a three-mile radius of Chef Menteur C&D Disposal Facility has been estimated based on Census 2000 data. Based on this information, the land use for the area within a three-mile radius of the facility, by approximate percentages, is as follows:

undeveloped - 84%
residential - 3%
agricultural - 0%
other commercial - 2%
health care facilities and schools - 0%
industrial/manufacturing - 10%
recreational - 1%

The facility will not accept hazardous waste and has strict procedures to prevent their inadvertent receipt. Thus, existing community health problems, if any, would not be aggravated by the operation of the facility. Due to the low potential for air emissions and variable winds, a designated population group that would be affected by potential air emissions from the facility could not be identified. A "bad air" condition caused by site operations is not likely to occur.

V. Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing nonenvironmental benefits?

As discussed previously, there is no current integrated solid waste management plan for Louisiana, and in particular, no integrated plan to manage the vast quantity of hurricane generated debris requiring disposal. However, this facility has been planned with the full knowledge and approval of the City of New Orleans.

A Waste Acceptance Program is included with the request. The program specifically provides procedures to determine the acceptability of a load pursuant to regulatory requirements, operational capabilities and state and federal regulations. The program also sets forth procedures to monitor incoming loads and verify that the incoming waste corresponds with provisions in the operational authorization. No other mitigating measures offer more protection to the environment while providing a recognizable nonenvironmental (e.g. economic) benefit due to provision of an environmentally sound disposal option in close proximity for hurricane generated debris in East New Orleans.

Resource Agency Correspondence
2005

State of Louisiana

DWIGHT LANDRENEAU
SECRETARY

DEPARTMENT OF WILDLIFE & FISHERIES
POST OFFICE BOX 98000
BATON ROUGE, LA 70898-9000
(225) 765-2800

KATHLEEN BABINEAUX BLANCO
GOVERNOR

Date	December 20, 2005
Name	Susan Douglas
Company	Sigma Engineers & Constructors, Inc.
Street Address	10305 Airline Highway
City, State, Zip	Baton Rouge, LA 70816
Project	Chef Menteur C&D Landfill New Orleans, Orleans Parish Solid Waste Permit Application
Invoice Number	05122001

Personnel of the Habitat Section of the Fur and Refuge Division have reviewed the preliminary data for the captioned project. The LNHP database indicates remnants of a Live oak forest within the proposed project boundaries or within one mile of the proposed project. Live oak forests are considered critically imperiled in the State of Louisiana and imperiled globally, with rankings of S1/G2Q. While the current project boundaries do not include the adjacent Live Oak forest, all efforts should be taken to prevent impacts to this forest from the surrounding project, and any future expansion of the landfill into the area containing the Live Oak forest is not advised. Contact Patti Faulkner, LNHP Ecologist, at 225-765-2975 to coordinate activities.

The proposed project is within 1/4 mile of Bayou Savage National Wildlife Refuge. Contact the USFWS SouthEastern Region, Louisiana Field Office at 985-882-3756 concerning NWR's. The proposed project lies within the designated coastal management zone. Contact Rocky Hinds or Phil Pittman with the Department of Natural Resources Coastal Management Division at 225-342-7591 or 1-800-267-4019 concerning coastal use permits.

After careful review of our database, no other impacts to rare, threatened, or endangered species or critical habitats are anticipated for the proposed project. No other state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The Louisiana Natural Heritage Program requires that this office be acknowledged in all reports as the source of all data provided here. If you have any questions or need additional information, please call Louisiana Natural Heritage Program Assistant Data Manager Steve Carpenedo at 225-765-2357.

Sincerely,

Nicole Lorenz

for Gary Lester, Coordinator